

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2005-0058
NPDES PERMIT NO. CA0037810

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF PETALUMA
WATER POLLUTION CONTROL PLANT
SONOMA COUNTY

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**ORDER NO. R2-2005-0058
NPDES PERMIT NO. CA0037810**

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

**CITY OF PETALUMA
WATER POLLUTION CONTROL PLANT
SONOMA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Regional Water Board, finds that:

1. The City of Petaluma, hereinafter referred to as the Discharger or the City, applied to the Regional Water Board, for reissuance of waste discharge requirements and a permit to discharge wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. The Discharger owns the municipal wastewater treatment plant (WWTP or plant) located at 950 Hopper Street in Petaluma and the oxidation pond system located at 4400 Lakeville Highway, Sonoma County, and presently contracts with Veolia Water Operation Services, Inc. to operate the WWTP. The plant provides secondary level treatment for combined domestic, commercial and industrial wastewater collected in the City, the nearby community of Penngrove, and unincorporated areas in the vicinity of Petaluma. The Discharger's service area currently has a population of approximately 56,632 for the City (Year 2005 data) and 1510 for Penngrove for a total of approximately 58,142 residents.
3. The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this Discharger as a major discharger.

Purpose of Order

4. This NPDES permit regulates the Discharger's sanitary sewer collection system, the WWTP and the discharge of effluent from the WWTP. Waste discharge requirements specified in Order No. 98-076 (the previous permit or previous Order), adopted by the Regional Water Board on July 15, 1998, used to govern this discharge.

Discharge Description

5. The WWTP has an average dry weather flow (ADWF) design capacity of 5.2 million gallons per day (mgd). The plant presently treats an average dry weather flow of 4.8 mgd (2000-2003) and an annual average flow of about 5.7 mgd (during January 2000 through March 2004). During the wet seasons of 2000 to 2004, the plant discharged an average effluent flow of 7.2 mgd to the Petaluma River; during the dry seasons of the same period, the plant recycled an average flow of 4.2 mgd. A map showing the location of the facility is included as **Attachment A**.

6. During the period from October 21 through April 30, treated wastewater is discharged into the Petaluma River through two submerged pipes located near the shore to prevent interference with barge traffic. The outfall is 8.6 feet below Mean Lower Low Water (MLLW)¹ level. The location of the outfall is approximately at Latitude 38° 12' 33" and Longitude 122° 34' 22".
7. From May 1 through October 20, treated wastewater is reused for agricultural irrigation. In addition to agricultural irrigation, treated wastewater is applied to a golf course located at Frates Road and Ely Road on a year-round basis. Discharge to the river does not occur during this period except as authorized by this permit, and only after a request, which may be submitted over the telephone, is made to the Executive Officer and the Executive Officer approves it. This report must fully explain the need for discharges during this period (e.g., high flows related to late spring or early fall storm events, when reuse is not feasible). Discharges of treated wastewater to land are regulated by Water Reuse Requirements in Order No. 88-036, adopted by the Regional Water Board on March 16, 1988. The City submitted the Notice of Intent (NOI) to be covered under the General Water Reuse Permit, Order No. 96-011, to the Regional Water Board and the California Department of Health Services on August 10, 2005. Upon the effective date of coverage under Order No. 96-011, Order No. 88-036 will be no longer effective.

Treatment Process Description

8. The treatment facility is divided between the main plant located at 950 Hopper Street and the oxidation ponds located approximately 2.5 miles southeast of the plant, at 4400 Lakeville Highway. The treatment process consists of rag and grit removal, pre-aeration, primary sedimentation, biological treatment (either biofiltration or activated sludge), secondary clarification, oxidation lagoon treatment, followed by chlorination/dechlorination. The lagoon/oxidation pond treatment system consists of aeration and oxidation in a 162-acre pond system. Sludge is treated by anaerobic and aerobic digestion, dewatered by either centrifuge or belt filter press, and disposed of in a landfill or land application. A treatment process schematic diagram is included as **Attachment B** of this Order.
9. At the headworks of the treatment plant on Hopper Street, wastewater is screened prior to being pumped to the aerated grit removal chamber. Grit is augered to a dumpster for disposal at a landfill. Following grit removal, wastewater flows to a primary clarifier.
10. *Split Flow Scheme.* Flows greater than 4.0 mgd are sent directly from the primary clarifiers to the pond system. Flows less than 4.0 mgd are split between two secondary treatment processes. Up to 2.2 mgd is treated in a biofiltration system consisting of three trickling filters in series, and up to 1.8 mgd is treated in an activated sludge process. Flows from the trickling filters and the activated sludge process are directed to secondary clarifiers and then pumped to the oxidation pond system.
11. *Wet Weather Flow Handling.* During wet season, daily flows in excess of approximately 6.0 mgd are directed to the Pond Influent Pump Station and pumped directly, after rag removal in a screening unit, to the oxidation pond system for treatment.

¹ A tidal datum. The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

12. *Oxidation ponds.* The oxidation pond system consists of an aerated lagoon followed by an aerated pond and nine oxidation ponds. In order to optimize the pond system to achieve the highest quality of effluent, the number of ponds used for treatment at any given time may vary, depending on the time of year, flows, and weather conditions. The aerated lagoon has 3 aerators and pond No. 1 is equipped with 7 aerators. Effluent from these ponds is disinfected by chlorination. The Discharger has added additional aerators to the oxidation ponds as well as finer screening at the headworks and bar screens at the Pond Influent Pump Station, in order to enhance the reliability of the existing plant.
13. *Sludge Handling and Disposal.* Wastewater solids removed during the treatment process are directed to either anaerobic or aerobic reactors for digestion. Waste activated sludge from the activated sludge process goes to the aerobic digester, while sludge from the biofiltration system and primary clarifier go to the anaerobic digester. The sludge is then dewatered by either a belt filter press or centrifuge. Stabilized, dewatered biosolids are hauled away for off-site disposal in a landfill or land application.
14. *Effluent Flow and Monitoring.* From October 21 to April 30, effluent from the oxidation ponds is dechlorinated prior to discharge to the Petaluma River. From May 1 through October 20, treated wastewater is reclaimed for irrigation. Flows directed to the recycling project are chlorinated, but generally not dechlorinated. Plant effluent flow is diverted either directly to the recycling distribution system or to the outfall pipeline. Effluent is monitored just after entering the pipelines. Total plant effluent flow and flow to recycling are measured separately.

Collection System Description

15. *Collection system and pump stations.* The Discharger's existing sanitary sewer collection system comprises approximately 224 miles of public sewer pipelines ranging in diameter from 6 to 48 inches. The collection system also includes four primary wastewater pump stations: C Street, Wilmington, Payran, and Copeland Street. These pump stations have alarms for notification in the event of system failure, and provision for emergency power.
16. *Pond Influent Pump Station (PIPS).* In a Sewer System Infiltration/Inflow Study, dated May 1996, overflow problems in the collection system were determined to be primarily a result of limitations in the pumping capacity at PIPS, which conveys treated effluent from the WWTP to the oxidation ponds, and an undersized sewer main in Lindberg Lane. To meet current and future peak wet weather flows and avoid overflows in the sewer collection system, the Discharger completed a \$5 million upgrade to the PIPS in 2001 by expanding its pumping capacity and replacing all the mechanical and electric equipment, and completed a \$1.5 million replacement of the Lindberg Lane sewer main in 2002.

Sanitary Sewer Management Plan

17. On October 15, 2003, the Regional Water Board adopted Order No. R2-2003-0095 establishing a collaborative effort with the Bay Area Clean Water Agencies (BACWA) to develop guidance for sanitary sewer management plans (SSMPs) aimed at reducing or eliminating sanitary sewer overflows, and for uniform, electronic reporting of sanitary sewer overflows to the Regional Water Board to facilitate the Regional Water Board's assessment of the problem regionally. This Order requires the Discharger to fully participate in this effort, to develop and implement an SSMP, and to report sanitary sewer overflows electronically. The requirements are specified in the Executive Officer's letters (*Requirement for Electronic Reporting of Sanitary Sewer Overflows*) dated November 15, 2004 and (*New Requirements for Preparing Sewer System Management Plans*) dated

July 7, 2005. In response to the Executive Officer's letter of July 7, 2005, the Discharger submitted SSMP Form A to the Regional Water Board on August 9, 2005.

New Wastewater Treatment Plant Status

18. *History of Existing WWTP.* The current wastewater treatment facilities consist of a combination of facilities that were constructed at various stages of community development over the past 67 years. The trickling filter plant was constructed in 1938, and the activated sludge plant was built in 1966. The oxidation ponds were added in 1972. Many treatment units, along with other equipment at the site, have exceeded their design life. These units and other mechanical, electrical and structural components of the plant may be subject to future break down and may need costly upgrade and repairs. Also, flows at the plant are reaching the permitted capacity of the facility.
19. In order to address the above described concerns, in 1991, the Discharger initiated a planning process for evaluation of the existing facilities, and development of a new plant, which would be privately owned, operated, financed and constructed. An Environmental Impact Report (EIR) for the City of Petaluma's Wastewater Facilities Project and Long-Range Management Program was approved by the Petaluma City Council in June of 1996. In 1999, the Discharger terminated the privatization process and began development of a publicly owned wastewater treatment facility. An antidegradation analysis was performed and included in the Report of Waste Discharge submitted in March 2002. In August 2002, the Discharger certified the Final EIR, and certified addenda to the Final EIR on June 7, 2004, and August 1, 2005, respectively.
20. The new WWTP (Ellis Creek Water Recycling Facility) will be located adjacent to the existing oxidation pond site, and will consist of bar screens, grit removal, oxidation ditches, oxidation ponds, secondary clarifiers, gravity belt thickening, solids digestion, solids dewatering, treatment wetlands, polishing treatment wetlands, chlorination and dechlorination facilities, with an average dry weather flow design capacity of 6.7 mgd. The secondary effluent will be filtered, and disinfected by ultra violet to provide for unrestricted reuse of the effluent. The new WWTP will utilize recycled water year-round. During the dry season, tertiary recycled water will also be utilized within the urban setting on parks and play fields. The Discharger anticipates continued use of secondary recycled water for agricultural use. The Discharger completed design of the facility in April 2005. It is expected that the new WWTP will be operational by 2008. The new facility will replace the existing facility at 950 Hopper Street. Once the new facility begins operating, the existing treatment structures at 950 Hopper Street will be demolished with the exception of the PIPS. The location map of the new WWTP is included as **Attachment C**. The treatment process schematic diagram for the new WWTP is included as **Attachment D**.
21. This Order allows, during Phase 1 of the plant improvements, an increase in the permitted dry weather flow capacity from the current capacity of 5.2 mgd to 5.7 mgd by written approval from the Executive Officer upon the submittal of an acceptable engineering report regarding the installation of additional aeration capacity, and the Executive Officer's review and acceptance of the antidegradation analysis referenced in Finding 19 above.
22. *NPDES Permit Requirements during Construction.* During the 36-month construction of the new WWTP, storage capacity in the ponds may be reduced due to, for example, wetland planting, biosolids removal, pump station development, flow split structure modifications, tie-in of pumps and pipes, and effluent discharge flow control structure modifications. From May 1 through October 20, treated wastewater is reused for agricultural irrigation. California Water Code, Section 13385(j)

provides protection to new treatment facilities by allowing a time period for the treatment facilities to become stabilized, during which violations of effluent limitations are exempt from enforcement actions. The Discharger, however, shall comply with conditions specified in the section before the protection can be applied. If construction constraints require some discharge in the summer months during the 36-month construction schedule, and the Executive Officer approves of such discharge, this discharge will be considered part of the time period for the treatment facilities to become stabilized.

23. This Order allows, during Phase 2 of the plant improvements, an increase in the permitted dry weather flow capacity from the Phase 1 capacity of 5.7 mgd to 6.7 mgd by written approval from the Executive Officer. This approval for a new permitted treatment plant capacity is conditioned upon completion of the proposed new treatment plant facilities in accordance with proposed designs, and documentation of treatment plant hydraulic and organic loading capacities in an engineering analysis performed by a professional engineer registered in the State of California. Tasks to be completed in order for the new permitted treatment plant capacity to become effective are identified in a provision of this Order.
24. *NPDES Permit Requirements for New WWTP.* After the new WWTP becomes operational, if that occurs before this Order expires, the effluent limitations contained in this Order will apply to the discharge from the new WWTP, except for total suspended solids (TSS) effluent limitations, which are specified in the Effluent Limitation Section. The Discharger may also seek protection under the California Water Code, Section 13385(j). The permit may be reopened, to include new or revised effluent limitations, after effluent water quality data from the new WWTP are available. In addition, the point of compliance with effluent limitations for the new facility will be determined after completion of construction and start-up.

Regional Monitoring Program

25. On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement a Regional Monitoring Program for the San Francisco Bay. Subsequent to a public hearing and various meetings, the Regional Water Board requested major permit holders in this region, under authority of Section 13267 of the California Water Code, to report on the water quality of the San Francisco Bay Estuary. These permit holders responded to that request by participating in a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort is known as the San Francisco Bay Regional Monitoring Program for Trace Substances (the RMP), which includes collection of data on pollutants and toxicity in water, sediment, and biota of the estuary. This Order requires the Discharger to continue to participate/contribute to the RMP.

Applicable Plans, Policies, and Regulations

26. Water quality objectives (WQOs), water quality criteria (WQC), effluent limitations, and calculations contained in this Order are based on the statutes, documents, and guidance detailed in Section III of the attached Fact Sheet, which is incorporated here by reference.
 - a. On March 30, 2000, U.S. EPA revised its regulation that specifies when new and revised State and Tribal water quality standards become effective for Clean Water Act (CWA) purposes (40 CFR 131.21, 65 FR 24641, April 27, 2000). Under U.S. EPA's new regulation (also known as the Alaska rule), new and revised standards submitted to U.S. EPA after May 30, 2000, must be approved before being used for CWA purposes. The final rule also provides that standards

already in effect and submitted to U.S. EPA by May 30, 2000, may be used for CWA purposes, whether or not approved by U.S. EPA.

- b. This Order contains restrictions on individual pollutants that are no more stringent than required by the federal Clean Water Act. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biological oxygen demand (BOD), total suspended solids (TSS), pH, Oil and Grease, and total chlorine residual. Restrictions on these pollutants are specified in federal regulations as discussed in Finding 34, and the permit's technology-based pollutant restrictions are no more stringent than required by the Clean Water Act. Water quality-based effluent limitations (WQBELs) have been scientifically derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule, or CTR), the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs are based on the CTR-SIP (*Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, the State Implementation Policy, or SIP), which was approved by U.S. EPA on May 1, 2001 or Basin Plan provisions approved by U.S. EPA on May 29, 2000. Most beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the Clean Water Act" pursuant to 40 C.F.R. 131.21(c)(1). The remaining WQOs and beneficial uses implemented by this Order (specifically arsenic, chromium (VI), copper (freshwater only), lead, nickel, silver, and zinc) were approved by U.S. EPA on January 5, 2005, and are applicable water quality standards pursuant to 40 C.F.R. 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the Clean Water Act and the applicable water quality standards for purposes of the Clean Water Act.

Beneficial Uses

27. The beneficial uses of San Francisco Bay in the vicinity of the outfall, as identified in the Regional Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan) and based on known uses of the receiving water (Petaluma River) in the vicinity of the discharge, are:
- Cold Fresh Water habitat
 - Marine Habitat*
 - Fish Migration
 - Navigation
 - Preservation of Rare and Endangered Species
 - Water Contact Recreation
 - Noncontact Water Recreation
 - Fish Spawning
 - Warm Freshwater Habitat
 - Wildlife Habitat

* The Discharger has stated its intent to petition the Regional Water Board to change the "Marine Habitat" beneficial use to "Estuarine" in the next Basin Plan review process.

Basis for Effluent Limitations

General Basis

Applicable WQOs/WQC

28. The WQOs/WQC applicable to the receiving water of this discharge are from the Basin Plan, CTR, and NTR.
- The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in fresh water, and lead, mercury, nickel, silver, zinc, and total polynuclear aromatic hydrocarbons (PAHs) in salt water. The narrative toxicity objective states in part “[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.” The bioaccumulation objective states in part “[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.” Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.
 - The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as San Francisco Bay, except where the Basin Plan’s Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan’s numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).
 - The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this Discharger.
29. Where numeric WQOs/WQC have not been established or updated in the Basin Plan, CTR, or NTR, 40 CFR Part 122.44(d) and Chapter 4 of the Basin Plan specify that WQBELs may be set based on U.S. EPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQC to fully protect designated beneficial uses. The Fact Sheet for this permit discusses the specific bases and rationales for effluent limitations, and is incorporated as part of this Order.

Basin Plan Amendment

30. On January 21, 2004, the Regional Water Board adopted Resolution No. R2-2004-0003 amending the Basin Plan to (1) update the dissolved WQOs for metals to be identical to the CTR WQC except for cadmium; (2) to change the Basin Plan definitions of marine, estuarine and freshwater to be consistent with the CTR definitions; (3) to update NPDES implementation provisions to be consistent with the SIP; (4) to remove settleable matter effluent limitations for POTWs, and other editorial changes. Subsequent to approval by the State Water Resources Control Board (State Water Board) and the Office of Administrative Law (OAL) (July 22, 2004, and October 4, 2004, respectively), the U.S. EPA approved the amendment on January 5, 2005.

Basin Plan and CTR Receiving Water Salinity Policy

31. The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water shall be considered in determining the applicable WQOs/WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced fresh waters that support estuarine beneficial uses, the criteria shall be the lower of the salt- or freshwater criteria (the freshwater criteria for some metals are calculated based on ambient hardness), for each substance.

Receiving Water Salinity

32. The receiving waters for the subject discharge are the waters of the Petaluma River, which is a tributary of San Pablo Bay. The Petaluma River is tidally-influenced and has salinities in between the two categories described above. Therefore, this Order's effluent limitations are based on the lower of the marine and fresh water WQOs/WQC. This is also consistent with the previous permit.

Receiving Water Hardness

33. Ambient hardness values are used to calculate freshwater WQOs/WQC that are hardness dependent. In determining the WQOs/WQC for this Order, Regional Water Board staff used a hardness value of 190 mg/L as CaCO_3 , which is the adjusted geometric mean (AGM) of 84 hardness values obtained from the Discharger's monitoring of the Petaluma River, during the period of January 1994 through December 2003, while there were discharges to the Petaluma River. The AGM represents the value that 30% of the data points fall below. The hardness data set was reduced (from 240 data points to 84 data points) to eliminate hardness values above 400 mg/L and to eliminate hardness values obtained when the receiving water salinity was above 1.0 ppt. Since salinity was not monitored for all sampling events, a linear regression analysis was performed on the available salinity and total dissolved solids (TDS) data. The equation was used to project the missing salinity values associated with hardness monitoring data collected on specific dates. (See the Fact Sheet for more details on the AGM calculation).

Technology-Based Effluent Limitations

34. Permit effluent limitations for conventional pollutants are technology based. Technology-based effluent limitations are put in place to ensure that full secondary treatment is achieved by the wastewater treatment facility, as required under 40 CFR Part 133.102. TSS effluent limitations are retained from the previous Order and are based on best professional judgment (BPJ). Additional effluent limitations for total coliform, total chlorine residual, and oil and grease are defined by the Basin Plan. Further, these conventional effluent limits are the same as those from the previous permit for the following constituents:

- Biochemical oxygen demand (BOD)
- BOD percent removal
- Total suspended solids (TSS)
- TSS percent removal
- pH
- Oil and grease

- Total coliform, and
- Total chlorine residual

The settleable solids effluent limitations are no longer required per the 2004 Basin Plan amendment.

35. Total Suspended Solids (TSS) Effluent Limitations

- a. The physical and operational characteristics of the oxidation ponds may contribute to suspended solids in the final effluent, as clay particles from the pond base are suspended by wave action. Algae growth and daphnia also contribute to suspended solids. The Federal Secondary Treatment [40 CFR 133.103] regulations recognize the inability of waste stabilization ponds to generate effluent that consistently meets standard secondary treatment requirements, and therefore allow alternative limitations when they are consistent with proper operation and maintenance of such facilities. According to the Federal Secondary Treatment regulations, these alternative limits may only be applied if (1) the BOD and TSS effluent concentrations, consistently achievable through proper operation and maintenance of the treatment works, exceed the minimum level of the effluent quality set forth in 133.102(a) and 133.102(b); and, (2) waste stabilization ponds or trickling filters are the principal process used for secondary treatment.
- b. The Discharger's secondary treatment processes include the trickling filters, activated sludge unit, and oxidation ponds. The trickling filters and oxidation ponds combined treat over 50% of the wastewater. The previous permit includes 5-day BOD (BOD₅) effluent quality consistent with the Federal Secondary Treatment regulation and from 2000 to March 2004, there have only been two exceedances of the BOD₅ effluent limitations.
- c. This Order retains the TSS effluent limits from the previous permit. The effluent limits for TSS are higher than those typically applied to discharge of secondary treated wastewater (Basin Plan TSS limits shall be applied after the new WWTP becomes operational). These limits were established by the Regional Water Board upon issuance of the Discharger's permit in 1985, based on changes in pond operation that resulted from initiation of the reuse program. Altering pond levels to accommodate reuse needs reduced particulate settling, and thus increased suspended solids levels.
- d. After the new WWTP, with treatment wetlands and polishing treatment wetlands aiming at resolving the TSS issue, is operational, the TSS effluent limits specified in 40 CFR 133.102 shall apply.

Water Quality-Based Effluent Limitations (WQBELs)

36. Toxic substances are regulated by WQBELs derived from the Basin Plan, Tables 3-3 and 3-4, the CTR, the NTR, and/or best professional judgment (BPJ) as defined in Section III of the attached Fact Sheet. WQBELs in this Order are revised and updated from the limits in the previous permit, and their presence in this Order is based on an evaluation of the Discharger's data as described below under the Reasonable Potential Analysis. Numeric WQBELs are required for all constituents that have a reasonable potential to cause or contribute to an excursion above any State water quality standard. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are

established, with a compliance schedule to achieve the final limits. Further details about the effluent limitations are given below and in the associated Fact Sheet.

- a. Maximum Daily Effluent Limitations (MDELs) are used in this permit to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms.
- b. NPDES regulations, the SIP, and U.S. EPA's Technical Support Document (TSD) provide the basis to establish MDELs. NPDES regulations at 40 CFR 122.45(d) state:
"For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as:
 - (1) Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works; and
 - (2) Average weekly and average monthly discharge limitations for POTWs." (Emphasis added.)
- c. The amended SIP (p. 8, Section 1.4) requires that WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs). For aquatic life-based calculations (only), the amended SIP indicates MDELs are to be used in place of average weekly limitations for POTWs.
- d. The TSD (p. 96) states a maximum daily limitation is appropriate for two reasons:
 - (1) The basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards.
 - (2) The 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed. A maximum daily limitation would be toxicologically protective of potential acute toxicity impacts.

Receiving Water Ambient Background Data Used in Calculating WQBELs

37. Ambient background values are used in the reasonable potential analysis (RPA) and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The Discharger has collected three sets of receiving water monitoring data in 2002 and 2003 at two stations, located upstream and downstream of its discharge outfall, respectively, on the Petaluma river, for all the 126 priority pollutants. In addition, the Discharger collected copper, nickel, and mercury receiving water data during a metal translator study in 2000 and 2001. These data are used in the RPA.

Constituents Identified in the 303(d) List

38. On June 6, 2003, U.S. EPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 2002 303(d) list) was prepared in accordance with Section 303(d) of the Federal Clean Water Act to identify specific waterbodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. San Pablo Bay is listed as an impaired waterbody. The pollutants impairing San Pablo Bay include diazinon, dieldrin, dioxin compounds, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. San Pablo Bay is also listed as impaired by exotic species. Copper, which was previously identified as impairing San Pablo Bay, was not included as an impairing pollutant in the 2002 303(d) list and has been placed on the new Monitoring List. The Petaluma River (tidal portion) has been listed as impaired by diazinon, nickel, pathogens, and nutrients.

Total Maximum Daily Loads (TMDLs) and Waste Load Allocations (WLAs)

39. The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for San Pablo Bay and the Petaluma River for the above 303(d)-listed pollutants within the next ten years, with the exception of dioxin and furan compounds. For dioxin and furan the Regional Water Board intends to consider this matter further after U.S. EPA completes its national health reassessment. Future review of the 303(d) list for San Pablo Bay and Petaluma River may result in revision of the schedules and/or provide schedules for other pollutants.
40. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. Depending upon whether the Discharger is found to be impacting water quality in San Pablo Bay and/or the Petaluma River, the TMDLs may include WLAs for the Discharger. If the TMDLs address the Discharger, the final effluent limitations for this discharge would be based on the applicable WLAs.
41. The following summarizes the Regional Water Board's strategy to collect water quality data and to develop TMDLs:
- a. *Data collection* – Dischargers collectively may assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water quality-limited water bodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the WQOs/WQC for the impaired water bodies including San Pablo Bay and/or Petaluma River.
 - b. *Funding mechanism* – The Regional Water Board has received, and anticipates continued receipt of, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through appropriate funding mechanisms.

Interim Limitations and Compliance Schedules

42. Section 2.1.1 of the SIP states:

“the compliance schedule provisions for the development and adoption of a TMDL only apply when: ... (b) the Discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the RWQCB should consider the discharge’s contribution to current loadings and the Discharger’s ability to participate in TMDL development.”

The Discharger has agreed to assist the Regional Water Board in TMDL development through active participation in and contribution to the BACWA. The Regional Water Board adopted Resolution No. 01-103, on September 19, 2001, authorizing the Executive Officer of the Regional Water Board to enter into a Memorandum of Understanding with BACWA and other parties to accelerate the development of Water Quality Attainment Strategies (WQAS), including TMDLs, for the San Francisco Bay-Delta and its tributaries.

43. Compliance schedules are established based on Section 2.2 of the SIP for limits derived from CTR or NTR WQC or based on the Basin Plan for limits derived from the Basin Plan WQOs. In addition, the Regional Water Board has reasonably construed the Basin Plan provision to authorize compliance schedules for new interpretations of existing standards resulting in more stringent effluent limitations. If an existing discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. The SIP and Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:
- Descriptions of diligent efforts the discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
 - Descriptions of source control and/or pollution minimization efforts currently under way or completed.
 - A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
 - A demonstration that the proposed schedule is as short as practicable.
44. Until final WQBELs or WLAs are adopted for 303(d)-listed pollutants, State and Federal anti-backsliding and antidegradation policies and the SIP require that the Regional Water Board include interim effluent limitations for them. The interim effluent limitations will be the lower of the current performance or the previous permit’s limitations.

This Order establishes an interim performance-based mass limitation to maintain the Discharger’s current loading of mercury, a 303(d)-listed bioaccumulative pollutant that has reasonable potential. This interim performance-based mass limitation is retained from the previous permit.

45. On August 22, 2005, the Discharger submitted a feasibility study (the Feasibility Study, see **Attachment H**), asserting it is infeasible to immediately comply with the WQBELs, calculated according to SIP Section 1.4, for copper and cyanide. In addition, the study asserts that the Discharger cannot comply with the mercury final effluent limit contained in the previous Order. Regional Water Board staff conducted statistical analysis or direct comparison of recent WWTP performance data for these pollutants, as further detailed in later findings under the heading

Development of Specific Effluent Limitations and also in Section IV.4.g, Tables D and E of the attached Fact Sheet. Based on these analyses, the Regional Water Board concurs that it is infeasible to achieve immediate compliance for these pollutants.

46. a. The demonstration of infeasibility for copper and cyanide complies with the Basin Plan, Chapter 4. This Order establishes a compliance schedule until May 17, 2010 for copper and April 27, 2010 for cyanide, as allowed by the CTR and Basin Plan, respectively. Since the compliance schedule extends beyond 1 year, pursuant to the SIP, and 40 CFR 122.47, the Regional Water Board shall establish interim numeric limitations and interim requirements to control the pollutants. This Order establishes interim limits for copper and cyanide based on the previous permit limits or existing plant performance, whichever is more stringent. Specific basis for these interim limits are described in the following findings for copper and cyanide.
 - b. The previous permit established a compliance schedule for copper until July 15, 2005 and for cyanide until July 15, 2003, or until site-specific objectives (SSOs) are adopted. The SSOs for copper and cyanide are still in development; therefore extension of the compliance schedules is appropriate. Though this Order requires final WQBELs for copper and cyanide to be met starting on May 18, 2010 and April 27, 2010, respectively, these WQBELs based on existing WQC appear to be over-protective in consideration of the site-specific objectives (SSOs) being developed for copper and cyanide. It is the Regional Water Board's intent to revisit these WQBELs once the SSOs are established.
47. This Order establishes an interim performance-based mass limitation to maintain the Discharger's current mass loadings of mercury into the Petaluma River and San Pablo Bay. Mercury is 303(d)-listed bioaccumulative pollutant. The interim performance-based mass limitation is retained from the previous permit.

This Order also establishes interim requirements in a provision for development and/or improvement of a Pollution Prevention and Minimization Program to reduce pollutant loadings to the WWTP, and for submittal of annual reports on this Program.

Antidegradation and Anti-backsliding

48. The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:
 - a. Under 402(o)(2)(c), a less stringent effluent limitation is allowed due to events over which the Discharger has no control and for which there is no reasonable available remedy.
 - b. Antibacksliding does not apply to the interim limitations established under previous Orders, so long as there is compliance with antidegradation requirements. The interim limitations in this Order are in compliance with antidegradation requirements and meet the requirements of the SIP because the interim limitations hold the Discharger to performance levels that will not cause or contribute to water quality impairment or further water quality degradation.

Specific Basis

Reasonable Potential Analysis

49. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method prescribed in Section 1.3 of the SIP, the Regional Water Board has analyzed the effluent data to determine whether the discharge, which is the subject of this Order, has a reasonable potential to cause or contribute to an excursion above an applicable water quality standard (reasonable potential analysis or RPA). For all parameters that have reasonable potential, numeric WQBELs are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the NTR, and the CTR.

RPA Methodology

50. The method for determining reasonable potential involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent, based on effluent concentration data. There are three triggers in determining reasonable potential.
- (1) The first trigger (Trigger 1) is activated when the MEC is greater than the lowest applicable WQO/WQC, which has been adjusted for pH, hardness (for freshwater WQO/WQC only), and translator data, if appropriate. If the MEC is greater than the adjusted WQO/WQC, then that pollutant has reasonable potential and a WQBEL is required.
 - (2) The second trigger (Trigger 2) is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO/WQC ($B > WQO/WQC$), and the pollutant was detected in the effluent samples.
 - (3) The third trigger (Trigger 3) is activated if a review of other information determines that a WQBEL is required even though both MEC and B are less than the WQO/WQC, or effluent and background data are unavailable or insufficient (e.g., all nondetects). A limit is required only under certain circumstances to protect beneficial uses.

RPA Determinations

51. Regional Water Board staff conducted a RPA based on effluent data collected from January 2000 through March 2004, and receiving water ambient background data collected from 2002 through 2004, for priority pollutants, and additional receiving water copper, nickel, and mercury data collected in 2000 and 2001, using the method prescribed in Section 1.3 of the SIP.
52. The MECs, WQOs/WQC, basis for the WQOs/WQC, background concentrations and reasonable potential conclusions are listed in Table 2 for all constituents analyzed. The RPA results for some of the constituents in the CTR were not determined because of lack of an objective/criteria. (Further details about the RPA can be found in the Fact Sheet.) Based on the RPA methodology in the SIP, the following constituents have been found to have reasonable potential to cause or contribute to an excursion above WQOs/WQC: copper, mercury, nickel, selenium, cyanide, bis(2-ethylhexyl)phthalate, and TCDD TEQ (dioxins and furans).

Table 2. Summary of RPA Results

CTR No.	Constituents	WQO/WQC (µg/L)	Basis ^[1]	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reasonable Potential (Trigger Type) ^[2]
1	Antimony	4,300	CTR, hh	0.5	1.1	No
2	Arsenic	36	BP, sw	3.6	29	No
4	Cadmium	1.9	BP, fw H=190	0.2	0.06	No
5b	Chromium (VI)	11	BP, fw	3	8.3	No
6	Copper	3.7	CTR,sw T=0.83	6	14.7	Yes (#1)
7	Lead	7.2	BP, fw, H=190	0.6	1.8	No
8	Mercury*	0.025	BP, sw	0.021	0.018	Yes (#3)
9	Nickel*	8.3	BP, sw	6.8	24.5	Yes (#2)
10	Selenium*	5.0	NTR, fw/sw	2	12	Yes (#2)
11	Silver	2.2	BP, sw	0.5	<0.01	No
12	Thallium	6.3	CTR, hh	0.2	0.2	No
13	Zinc	86	BP, sw	40	20	No
14	Cyanide	1.0	NTR, sw	10	3	Yes (#1)
68	Bis(2-Ethylhexyl)Phthalate	5.9	CTR, hh	12	<0.8	Yes (#1)
	TCDD TEQ*	1.4x10 ⁻⁸	CTR, hh	8.73x10 ⁻⁶	5.27x10 ⁻⁸	Yes (#1)
	CTR#s 17-126	Various or NA	CTR, hh	Non-detect, less than WQO, or no WQO	Less than WQO or Not Available	No or Undetermined ^[3]

* = Constituents on 303(d) list

[1] RPA based on the following: BP = Basin Plan; CTR = California Toxics Rule; NTR=National Toxics Rule; fw = freshwater; sw = saltwater; hh= human health; H= ambient hardness value; T = translator to convert dissolved to total copper.

[2] Trigger type is as defined in Finding 50 above.

[3] Undermined due to lack of WQOs/WQC of effluent data.

53. *RPA Results for Impairing Pollutants.* While TMDLs and WLAs are being developed, interim concentration limitations are established in this permit for 303(d)-listed pollutants that have a reasonable potential to cause or contribute to an excursion above the water quality standard. In addition, mass limitations are required for bioaccumulative 303(d)-listed pollutants that can be reliably detected. Constituents on the 303(d) list for which the RPA determined a need for effluent limitations are mercury, nickel, selenium, and dioxins. Final determination of reasonable potential for some other constituents identified on the 303(d) list could not be performed owing to the lack of an established WQO/WQC.

54. *Polynuclear Aromatic Hydrocarbons (PAHs)*. This Order implements the policy and regulations of the CTR and SIP in regard to PAHs, i.e., reasonable potential is determined for individual PAHs. The Basin Plan contains a WQO for total PAHs for the protection of saltwater aquatic life of 15 µg/L, as a 24-hour average; therefore, RPA is also performed on total PAHs. The previous permit included a WQBEL for total PAHs of 0.049 µg/L as a daily average for protection of the Basin Plan's narrative toxicity objective. The Discharger's monthly monitoring data for total PAHs from 2001 through 2003 contain all non-detected values, with a reporting limit of 0.3 µg/L. This is lower than the required reporting limit of 4 µg/L in the previous permit. Therefore, there is no reasonable potential for total PAHs and no effluent limitation is included in this Order. The Discharger also analyzed individual PAH compounds included in the CTR and none were detected and no reasonable potential was shown. Continued monitoring for these pollutants is required by Provision F.2.
55. *Other Organics*. The Discharger has performed sampling and analysis for all but a few organic constituents listed in the CTR. The data were used to perform the RPA. The full RPA is presented as an attachment in the Fact Sheet. The Discharger will continue to monitor for these constituents in the effluent and the receiving water.
56. *Effluent Monitoring*. This Order does not include effluent limitations for constituents that do not show reasonable potential, but continued monitoring for these pollutants is required as described in Provision F.2. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures, if the increases result in a reasonable potential to cause or contribute to an excursion above the applicable WQO/WQC.
57. *Permit Reopener*. This Order includes a reopener provision to allow numeric effluent limitations to be added or deleted for any constituent that exhibits or does not exhibit, respectively, reasonable potential. The Regional Water Board will make this determination based on monitoring results.

Development of Effluent Limitations

58. Copper

- a. *Copper WQC*. The saltwater criteria for copper in the CTR are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protection. Included in the CTR are default translator values to convert these dissolved criteria to total criteria. Using the CTR default translator of 0.83, translated criteria of 3.7 µg/L for chronic protection and 5.8 µg/L for acute protection were used to determine reasonable potential and calculate effluent limitations.
- b. *RPA Results*. This Order establishes effluent limitations for copper because the 6 µg/L MEC exceeds the governing WQC of 3.7 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a previous finding.
- c. *WQBELs*. The copper WQBELs calculated according to SIP procedures are 5.2 µg/L as the maximum daily effluent limit (MDEL) and 3.3 µg/L as the average monthly effluent limit (AMEL). The previous permit included a WQBEL of 4.9 µg/L as a daily average. This number is lower than the calculated MDEL, above. Although the calculated MDEL is higher than the previous Order's copper daily average limitation, the new WQBELs derived using the SIP

procedures are considered to be more protective of the water quality. The AMEL will limit the discharge to a lower long-term average level than the previous permit limitation, which only limits the daily average concentration of the effluent, and as a result, the Discharger could practically discharge an effluent with long-term average at the previous daily average level. Therefore, the new WQBELs are considered to be more stringent, and are established as the new WQBELs.

- d. *Immediate Compliance Infeasible.* The Discharger's Feasibility Study asserts the Discharger cannot immediately comply with these WQBELs for copper. Regional Water Board staff statistically analyzed the Discharger's effluent data from January 2000 through March 2004 (see Section IV.4.g and Table D of the attached Fact Sheet for detailed results of the statistical analysis). Based on the analysis, Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with final copper WQBELs.
- e. *Interim Effluent Limitation.* Because it is infeasible for the Discharger to immediately comply with the copper WQBELs, an interim limitation is required. Regional Water Board staff considered effluent data from January 2000 to March 2004 to develop an interim limitation. Historically, IPBLs have been referenced to the 99.87th percentile value of recent performance data. Statistical analysis of the copper effluent data indicates a 99.87th percentile value of 7.9 µg/L. The previous permit contains a WQBEL of 4.9 µg/L, which is more stringent. However, the Discharger has asserted that it is infeasible to achieve immediate compliance with the previous permit effluent limit. The Discharger asserts that its oxidation pond system provides metal removal usually equivalent to a tertiary-level treatment plant. The Discharger's copper effluent monitoring concentrations have been consistently low in the past (MEC is 6 µg/L); but there were samples exceeding the previous limit of 4.9 µg/L. An interim limit based on recent performance is necessary; therefore, 7.9 µg/L is established as the interim limitation, expressed as a daily maximum.
- f. *Plant Performance and Attainability.* During the period January 2000 through March 2004, the plant's effluent concentrations ranged from 1.7 µg/L to 6.0 µg/L (33 samples). All samples are below the interim limit, therefore, it is expected that the Discharger can comply with the copper interim effluent limitation.
- g. *Term of Interim Effluent Limitations.* The copper interim limitation shall remain in effect until May 17, 2010, or until the Regional Water Board amends the limitation based on additional data or SSOs.
- h. *SSO.* During the permit term, the Regional Water Board may amend the copper WQBELs based on the SSO being developed for San Pablo Bay. San Pablo Bay SSOs will be applicable to the Petaluma River.
- i. *Antibacksliding/Antidegradation.* As described in Finding 58.c, the SIP WQBELs are more stringent than the limit in the previous permit, so there is no antibacksliding. Antibacksliding does not apply to interim effluent limits, so long as there is compliance with antidegradation. The interim limit in this permit is in compliance with antidegradation, because it is based on current plant performance and will limit the discharge to existing treatment level. Even if antidegradation applies to interim limits, the interim limit in this permit is exempt pursuant to CWA 402(o)(2)(c).

59. Mercury

- a. *Mercury WQOs/WQC.* Both the Basin Plan and the CTR include objectives and criteria that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of salt water aquatic life of 0.025 µg/L, as a 4-day average, and 2.1 µg/L as a 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.
- b. *Mercury RPA Results.* Using Trigger 3 as defined in a previous finding, this Order establishes effluent limitations for mercury because San Pablo Bay is listed as impaired by mercury. Effluent limitations are necessary to limit the mercury loading into the Bay.
- c. *Mercury WQBELs.* The mercury WQBELs calculated according to SIP procedures are 0.040 µg/L as the MDEL and 0.021 µg/L as the AMEL. The previous permit contains a WQBEL of 0.012 µg/L as AMEL, which is more stringent. Despite this, it is appropriate to apply the less stringent SIP WQBELs, in part because the Discharger has asserted that it is infeasible to achieve immediate compliance with the previous permit effluent limit. The Discharger's mercury effluent monitoring concentrations have been consistently low in the past (average effluent concentration is 0.0071 µg/L during January 2000 through March 2004); but there were samples exceeding the previous limit of 0.012 µg/L (MEC is 0.021 µg/L). The new WQBELs were calculated using applicable Basin Plan objectives and SIP procedures, so it will ensure protection of beneficial uses. Therefore, the new WQBELs are established as the effluent limits in this Order. When the Final Bay-wide mercury TMDL becomes effective, the Regional Water Board will amend the effluent limits in this Order to be consistent with the WLA and other requirements specified in the TMDL.
- d. *Discharger's Performance and Attainability.* During the period January 2000 through March 2004, the Discharger's effluent mercury concentrations ranged from 0.0005 µg/L to 0.021 µg/L (30 samples). A statistical analysis of the performance data shows that the Discharger can comply with the effluent limitations for mercury.
- e. *Mercury Source Control Strategy.* The Regional Water Board is developing a TMDL to control mercury levels in San Pablo Bay. The Regional Water Board, together with other stakeholders, will cooperatively develop source control strategies as part of the TMDL development. Municipal discharge point sources are not a significant source of mercury to San Pablo Bay. Therefore, the currently preferred strategy is to apply interim mass loading limits to point source discharges while focusing mass reduction efforts on other more significant and controllable sources. While the TMDL is being developed, the Discharger will cooperate in maintaining ambient receiving water conditions by complying with performance-based mercury mass emission limits. Therefore, this Order includes interim mass loading effluent limitation for mercury, as described in the findings below. The Discharger is required to implement source control measures and cooperatively participate in special studies as described below.
- f. *Mercury TMDL.* The current 303(d) list includes San Pablo Bay as impaired by mercury, due to high mercury concentrations in the tissue of fish from the Bay. Methyl-mercury, the highly toxic form of mercury, is a persistent bioaccumulative pollutant. There is no evidence to show that the mercury discharged is taken out of the hydrologic system, by processes such as evaporation before reaching San Pablo Bay. Absent this evidence, the Regional Water Board assumes that the mercury reaches the Bay through either sediment transport or water flows. The Regional Water Board intends to establish a TMDL that will lead towards overall reduction of mercury mass

loadings into San Pablo Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. While the TMDL is being developed, the Discharger will comply with mercury concentration and mass-based limitations to cooperate in maintaining current ambient receiving water conditions. Additionally, the trigger may be revised when effluent data from the new plant are available.

- g. *Interim Mercury Mass Emission Limit.* In addition to the concentration-based mercury IPBL, this Order establishes an interim annual mercury mass loading limit of 0.60 kilogram per year (kg/yr). This limit is retained from the previous Order. It will maintain current loadings until a TMDL is established and is consistent with state and federal antidegradation and antibacksliding requirements. The final mass-based effluent limitation will be based on a WLA derived from the mercury TMDL for this discharge.
- h. *Mass Trigger.* This Order establishes a mercury mass trigger of 0.0051 kilogram per month (kg/mo), which is based on recent plant performance during January 2000 through March 2004. The mass loading trigger, if exceeded, requires the Discharger to initiate additional actions, as specified in Provision F.8.
- i. *Final Mercury Limitations.* Final mercury limitations will be revised/established to be consistent with the WLA assigned in the final mercury TMDL. While the TMDL is being developed, the Discharger will comply with performance-based mercury concentration and mass-based limitations to cooperate in maintaining current ambient receiving water conditions.
- j. *Antibacksliding/Antidegradation.* CWA Section 402(o)(2)(c) provides an exception to antibacksliding that is applicable to less stringent limits for mercury in this case. Specifically, CWA Section 402(o)(2)(c) provides that "relaxation is allowed only to the treatment levels actually achieved" if "the permittee has installed treatment facilities required to meet effluent limitations in the previous permit and has operated and maintained the facilities but still has been unable to meet the effluent limitations." The Discharger's treatment system provides excellent removal for mercury. The Discharger has properly operated and maintained the treatment facilities, but still has been unable to meet the effluent limit. The new mercury WQBELs will ensure the mercury WQOs/WQC to be met in the receiving water. In addition, the new WQBELs are more stringent than a performance-based limit that would be established, as a result, they will hold the Discharger's effluent concentrations to the existing treatment level, and it will not cause the degradation of water quality in the receiving water. Therefore, the establishment of the SIP WQBELs, in place of the previous permit limit, is allowed and complies with antibacksliding requirements.

60. Nickel

- a. *Nickel WQOs.* The Basin Plan contains numeric nickel saltwater WQOs which are 8.3 µg/L for chronic protection and 75 µg/L for acute protection, as total recoverable metal.
- b. *RPA Results.* The maximum ambient background nickel concentration of 24.5 µg/L exceeds the governing WQO of 8.3 µg/L, and nickel was detected in the effluent, demonstrating reasonable potential by Trigger 2, as defined in a finding above.
- c. *WQBELs.* The nickel WQBELs calculated according to SIP procedures are 11.0 µg/L as the MDEL and 7.5 µg/L as the AMEL. The previous permit contained a WQBEL of 7.1 µg/L as a

daily average, which is more stringent. Therefore, the previous permit limit is retained as the WQBEL, expressed as a daily maximum.

- d. *WWTP Performance and Attainability.* During the period January 2000 through March 2004, the Discharger's nickel effluent concentrations ranged from 2.7 µg/L to 6.8 µg/L (33 samples). All samples are below the effluent limit of 7.1 µg/L, therefore, it is expected that the Discharger can comply with the effluent limit.
- e. *Anti-backsliding/Anti-degradation.* The anti-backsliding and anti-degradation requirements are satisfied as the effluent limit is unchanged from the previous permit.

61. Selenium

- a. *Selenium WQC.* To protect saltwater aquatic life, the NTR specifies objectives for selenium of 5 µg/L for chronic aquatic life protection and 20 µg/L for acute protection.
- b. *WQBELs.* The selenium WQBELs calculated according to SIP procedures are 8.2 µg/L MDEL and 4.1 µg/L AMEL.
- c. *RPA Results.* The maximum ambient background selenium concentration of 12 µg/L exceeds the governing WQC of 5 µg/L, and selenium was detected in the effluent, demonstrating reasonable potential by Trigger 2, as defined in a finding above.
- d. *Plant Performance and Attainability.* During the period from January 2000 through March 2004, the WWTP's effluent MEC for selenium was 2 µg/L. The Discharger collected 33 samples, with only 5 detected values ranging from 0.6 to 2 µg/L. Due to larger numbers of non-detect values, it is not possible to perform a statistical analysis to determine corresponding percentiles for feasibility compliance determination. Since the MEC is lower than the more stringent AMEL, it is, therefore, expected that the Discharger can comply with the WQBELs.
- e. *Antibacksliding/Antidegradation.* The previous permit does not contain an effluent limitation for selenium. Therefore, antibacksliding and antidegradation requirements do not apply.

62. Cyanide

- a. *Cyanide WQC.* The NTR includes WQC that govern cyanide for the protection of aquatic life in salt surface water. The NTR specifies a saltwater Criterion Maximum Concentration (CMC) and Criterion Chronic Concentration (CCC) of 1 µg/L.
- b. *RPA Results.* This Order establishes effluent limitations for cyanide because the 10 µg/L MEC exceeds the governing WQC of 1 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a previous finding.
- c. *WQBELs.* The cyanide WQBELs calculated according to SIP procedures are 1.0 µg/L MDEL and 0.5 µg/L AMEL.
- d. *Immediate Compliance Infeasible.* The Discharger's Feasibility Study asserts that the Discharger cannot immediately comply with these WQBELs. Regional Water Board staff statistically analyzed the Discharger's effluent data from January 2000 through March 2004 and determined

that the assertion of infeasibility is substantiated for cyanide (see Section IV.4.g and Table D of the attached Fact Sheet for detailed results of the statistical analysis).

- e. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix inferences. There is also evidence to suggest that, to some degree, cyanide measured in effluents may be an artifact of the analytical method used or the result of analytical interferences. In general, the chemistry of cyanide formation in POTW effluents is highly complex, involving both chemical and environmental factors, in ways that are still poorly understood, despite considerable research. In addition, it is not known whether the form(s) of cyanide that are measured in POTW effluents exhibit toxicity in these environments. A 3-year \$1.5 million (M) investigation completed in late 2002, sponsored by the Water Environment Research Foundation (WERF), in which several Bay Area POTWs participated, described a number of possible mechanisms for cyanide formations, and shed new light on analytical issues, but found no process or operational measures that could be implemented by the Discharger to reduce observed cyanide levels in the effluent.
- f. *SSO and Ambient Background Data Collection.* A regional discharger-funded study is underway for development of a cyanide SSO or recalculation of the criteria. The cyanide study plan was submitted on October 29, 2001, and the final report was submitted on June 29, 2003. The WQBELs will be re-calculated based on a cyanide SSO, or updated criteria if adopted. A draft Basin Plan amendment including new SSOs for the Bay, compliance strategies for shallow water dischargers, and implementation policy for the SSOs has been developed and is under public review and comment.
- g. *Interim Effluent Limitation.* Because it is infeasible for the Discharger to immediately comply with the cyanide WQBELs, an interim limitation is required. Regional Water Board staff considered effluent data from January 2000 to March 2004 to develop an interim limitation. Historically, IPBLs have been referenced to the 99.87th percentile value of recent performance data. Statistical analysis of the cyanide effluent data indicates a 99.87th percentile value of 16.5 µg/L. The previous permit contained an interim limitation of 14 µg/L as a daily average, which is more stringent. Therefore, the previous permit limitation is retained as the interim limitation, expressed as a daily maximum.
- h. *Plant Performance and Attainability.* During the period January 2000 through March 2004, the Discharger's cyanide effluent concentrations ranged from 1.4 µg/L to 10 µg/L (33 samples). All 33 samples were below the interim limitation of 14 µg/L. It is, therefore, expected that the plant can comply with the interim limitation for cyanide.
- i. *Term of Interim Effluent Limitations.* The cyanide interim limitation shall remain in effect until April 27, 2010 or until the Regional Water Board amends the limitations based on additional data or SSOs.
- j. *Anti-backsliding/Anti-degradation.* Although the interim limitation contained in the previous Order expired on July 15, 2003, the previous permit did not specify a WQBEL. As a result, the interim limit has been in effect until this Order becomes effective. Therefore, anti-backsliding/anti-degradation requirements are satisfied as the interim limit is unchanged from the previous permit.

63. Dioxins and Furans

- a. *Dioxin WQC.* The CTR establishes a numeric human health WQC of 0.014 picogram per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have a reasonable potential with respect to narrative criteria. In U.S. EPA's National Recommended WQOs, December 2002, U.S. EPA published the 1998 World Health Organization Toxicity Equivalence Factor (TEF)² scheme. In addition, the CTR preamble states U.S. EPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The SIP applies to all toxic pollutants, including dioxins and furans. Staff used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.

- b. The Basin Plan contains a narrative WQO for bioaccumulative substances:

"Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

This narrative WQO applies to dioxin and furan compounds, based in part on the consensus of the scientific community that these compounds associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms.

- c. U.S. EPA's 303(d) listing determined that the narrative objective for bioaccumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue.
- d. *RPA Results.* The dioxin TEQ MEC is above the governing WQC, triggers reasonable potential using Trigger 1, as defined in a previous finding.
- e. *WQBELs.* The TCDD TEQ WQBELs calculated according to SIP procedures are 0.014 pg/L as the AMEL and 0.028 pg/L.
- f. *Dioxin Effluent Limits.* Due to the limited monitoring data, no dioxin limits (final or interim) are established. The final limits for dioxin TEQ will be based on the WLA assigned to the Discharger in the TMDL. This Order requires additional dioxin monitoring to complement the Clean Estuary Partnership's special dioxin project, consisting of impairment assessment and a conceptual model for dioxin loading into the Bay. The permit will be reopened, as appropriate, to include interim dioxin limitations when additional data become available.

64. Bis(2-Ethylhexyl)Phthalate

- a. *Bis(2-Ethylhexyl)Phthalate (BEHP) WQC.* The CTR establishes a human health value of 5.9 µg/L for BEHP, based on consumption of organisms.

² The 1998 WHO scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs," for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

- b. *RPA Results.* The 12 µg/L MEC exceeds the governing WQO of 5.9 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a finding above.
- c. *BEHP Monitoring.* The WQBELs calculated for BEHP are: AMEL of 5.9 µg/L and MDEL of 11.8 µg/L. In addition to the MEC, which was detected during a non-discharge season, the Discharger has two other detected, but not quantified, values of 1 µg/L. Therefore, the Regional Water Board has determined that there is insufficient information to determine the feasibility of compliance. In addition, many POTWs in this area have encountered sampling contamination for this pollutant which may yield false positive high values. Therefore, this permit requires additional BEHP monitoring; when more data are available, the Regional Water Board will determine whether to include effluent limits for BEHP.

Whole Effluent Acute Toxicity

- 65. a. *Permit Requirements.* This Order includes effluent limits for whole-effluent acute toxicity that are unchanged from the previous Order. All bioassays shall be performed according to the U.S. EPA approved method in 40 CFR 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition." By a letter dated December 31, 2003, the Discharger requested to convert to the static renewal test after switching to the 5th edition in January 2004. The major difficulties associated with flow-through bioassay for the Discharger include clogging of the mesh of the testing container, low oxygen levels in the pond effluent during night, and hard to count fish due to high turbidity associated with algae. Since the Discharger's pond effluent is relatively homogenous throughout the day, the Regional Water Board approved the Discharger's request. The Discharger will be required to return to flow through testing once the new WWTP is operational or after the algae problem gets resolved for the existing facility.
- b. *Compliance History.* The Discharger started to observe as high as 100% mortality to the fathead minnows, after it switched to the 5th Edition method. Elevated toxicity was observed during February and April 2004. The Discharger has performed parallel acute toxicity testing using zeolite; the results indicate ammonia is likely the pollutant that caused the observed toxicity.
- c. *Ammonia Toxicity.* If acute toxicity is observed in the future and the Discharger believes that it is due to ammonia toxicity, this has to be shown through a Toxicity Identification Evaluation (TIE) acceptable to the Executive Officer. If the Discharger demonstrates to the satisfaction of the Executive Officer that exceedance of the acute toxicity limits is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, the such toxicity does not constitute a violation of this effluent limit. If ammonia toxicity is verified in the TIE, the Discharger may utilize an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

Whole Effluent Chronic Toxicity

- 66. a. *Permit Requirements.* This permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, and in accordance with U.S. EPA and State Water Board Task Force guidance, and BPJ. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.

- b. *Compliance Species.* The Discharger performed chronic toxicity screening phase tests in December 2002, January and February 2003. Among the four testing species - *Macrocystis pyrifera* (giant kelp), *Americamysis bahia* (mysid), *Atherinops affinis* (topsmelt), and *Pimephales promelas* (fathead minnow, the existing compliance species), mysid, which had an observed highest growth TUC of 3.1, is the most sensitive species identified during these three rounds of tests. The Discharger shall use *Americamysis bahia* (mysid) for compliance monitoring.
- c. *Discharge Monitoring.* Chronic toxicity data from January 2000 through March 2004 has shown some, inconsistent low-level chronic toxicity in the effluent. The 3-sample median of 1 TUC and single sample maximum of 2 TUC triggers were exceeded twice and once, respectively, during this period. The Discharger is performing a TIE study, using zeolite to remove ammonia, and the zeolite-treated effluent has not shown any toxicity compared to the non-treated effluent.
- d. *Permit Reopener.* The Regional Water Board will consider amending this permit to include numeric toxicity limits if the Discharger fails to aggressively implement all reasonable control measures included in its approved TRE workplan, following detection of consistent significant non-artifactual toxicity.

Coliform Alternate Limitations and Disinfection Study

- 67. This Order includes total coliform limitations, consistent with Table 4-2 of the Basin Plan, since a recent study demonstrates that the discharge does not compromise the beneficial uses of Petaluma River. Therefore, the Regional Water Board grants an exception to total coliform limits in Table 4-2 of the Basin Plan for shallow water dischargers. The Discharger may use alternative limitations of bacteriological quality instead of meeting the total coliform limitations in Section B.4. of this Order if the Discharger can establish to the satisfaction of the Executive Officer that the use of the enterococcus, *E. coli* or fecal coliform limitations will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. The requirements are specified in Provision F.13.
- 68. *Disinfection Effectiveness Evaluation and Study.* The Discharger had over 40 total coliform limitation exceedances from 2000 through 2004, and it claims that the exceedances are related to the high algae concentrations in the oxidation pond effluent. The Discharger also claims that the tidal actions in the Petaluma River have affected its flow measurements, thus having impacts on its chlorine dosage control causing several chlorine residual violations. The Discharger is required by a provision in this Order to conduct a disinfection study to investigate measures to prevent bacterial limitation violations as well as the chlorine residual violations.

Total Suspended Solids

- 69. During January 2000 through March 2004, TSS concentrations in the discharge ranged from 8.0 mg/L to 84.7 mg/L. Effluent TSS concentrations exceeded the TSS effluent limitations or fell below the TSS minimum removal requirement 14 times during the discharge seasons from January 2000 through March 2004. The Discharger was required by the previous permit to evaluate measures of reducing TSS in its effluent. The Discharger submitted a study report in December 2002. The study indicates algae bloom is the major cause of the high TSS in the ponds' effluent during warmer weather. The study further indicates that dissolved air flotation units or treatment wetlands would be the best resolution for removing TSS from the pond effluent. The Discharger is building a new WWTP that includes treatment and polishing wetlands, which would address the TSS water quality issue. The new WWTP is expected to be put on line in 2008.

Basin Plan Discharge Prohibition

70. The Basin Plan prohibits the discharge of any wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive an initial dilution of at least 10:1, or into any nontidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof. Discharge of wastewater to the Petaluma River is contrary to this prohibition, due to the tidal nature of the Petaluma River, and the limited fresh water flows upstream of the outfall. The discharge is classified as a shallow water discharge; therefore, effluent limitations are calculated assuming no dilution.
71. The Basin Plan provides that exceptions to the above prohibition will be considered for discharges where: 1) an inordinate burden would be placed on the Discharger relative to beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability; or, 2) the discharge is approved as a part of a reclamation project; or, 3) it can be demonstrated that net environmental benefits will be derived as a result of the discharge.
72. In addition to the criteria stated above for exceptions, the Basin Plan requires that the Regional Water Board consider the reliability of the Discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water, and the environmental consequences of such discharges.
73. The Discharger currently recycles treated wastewater for irrigation of agricultural lands used to grow fodder, fiber, or seed crops, and on lands used for pasture. The Discharger also recycles treated wastewater for irrigation of a golf course, a field located on property owned by the City of Petaluma, and land adjacent to the oxidation ponds where trees have been planted. The dry season prohibition period is May 1 through October 20 of each year. From 2000 through 2003, the Discharger recycled an average of 36% of its total influent flows, or 89% of its total dry weather flows.
74. The Discharger's pond system, utilized for both treatment and storage of wastewater, affords the Discharger a significant volume of storage capacity that can be used for containment of peak wet weather flows, or for emergency storage in the event of plant upset. The use of these ponds minimizes the possibility of discharge of untreated or partially treated wastewater to the Petaluma River.
75. The Regional Water Board finds that the water reuse program implemented by the Discharger complies with the exception provision of the Basin Plan. The Regional Water Board hereby grants an exception to the discharge prohibition for wet season discharges to the Petaluma River for a six-month period each year. This exception is subject to the following conditions. The Discharger shall:
 - a. Continue to operate all treatment facilities to assure high reliability and redundancy;
 - b. Continue to implement a source control program for any regulated chemical constituents that are consistently measured at levels in violation of permit effluent limitations;
 - c. Continue to implement measures to maintain, repair, and upgrade the existing wastewater facilities so as to ensure continued operation and treatment capability in conformance with permit requirements;

- d. Continue progress towards construction of new or upgraded treatment facilities. These facilities are to be designed to ensure adequate capacity for community wastewater needs, and provide an adequate and reliable treatment process developed with sufficient flexibility and redundancy to comply with permit requirements as necessary to protect beneficial uses of the Petaluma River.
- e. Continue to promote and encourage beneficial reuse of treated wastewater.

Storm Water

- 76. Federal Regulations for storm water discharges were promulgated by the U.S. EPA on November 19, 1990. The regulations [40 Code of Federal Regulations (CFR) Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Available (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.
- 77. The State Water Board adopted a statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001, adopted in 1997). The General Permit is applicable to municipal wastewater treatment facilities. The Discharger filed a Notice of Intent for coverage by the General Permit, and a Storm Water Pollution Prevention Plan has been developed and implemented at the site for storm water flows that are directed to the Petaluma River. All pump stations serving the plant are constructed such that rainfall and storm water in contact with pump station equipment and/or sewage is self-contained, and flows to the treatment plant.
- 78. In order to consolidate permits for the facility, storm water flows from the site will henceforth be regulated by this Order, and coverage under the General Permit is terminated. These storm water flows constitute all industrial storm water at this facility and consequently this Order regulates all industrial storm water discharges at this facility, through continued implementation of the Storm Water Pollution Prevention Plan.

Pollution Prevention

- 79. The Discharger has established a Pollution Prevention Program under the requirements specified by the Regional Water Board.
 - a. Section 2.4.5 of the SIP specifies under what situations and for which priority pollutant(s) (i.e., reportable priority pollutants) the Discharger shall be required to conduct a Pollutant Minimization Program in accordance with Section 2.4.5.1.
 - b. There may be some redundancy between the Pollution Prevention Program and the Pollutant Minimization Program requirements.
 - c. Where the two programs' requirements overlap, the Discharger is allowed to continue, modify, or expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
 - d. For constituents identified under Effluent Limitations, Section B, the Discharger will conduct appropriate source control or pollutant minimization measures that are consistent with its approved Pollution Prevention Program. For constituents with compliance schedules under this permit, the applicable source control and pollutant minimization requirements of Section 2.1 of the SIP will also apply.

80. On October 15, 2003, the Regional Water Board adopted Resolution R2-2003-0096 in support of a collaborative working approach between the Regional Water Board and BACWA to promote Pollution Prevention Program development and excellence. Specifically, the Resolution embodies a set of 11 guiding principles that will be used to develop tools such as "P2 menus" for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key guiding principles in the Resolution include promoting watershed, cross-program, and cross-media approaches to pollution prevention, and jointly developing tools to assess an individual Discharger's program performance, which may include peer reviews, self-audits, or other formats.

Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy

81. On August 6, 2001, the Regional Water Board sent a letter to all the permitted dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data, and the dioxin study. The letter (described above) is referenced throughout the permit as the "August 6, 2001 Letter".
82. Pursuant to the August 6, 2001 Letter from Regional Water Board Staff, the Discharger submitted workplans and sampling results for characterizing the levels of selected constituents in the effluent. The Discharger has collected effluent samples and receiving water samples for the 126 priority pollutants. These data were used in the RPA and interim limitation calculations in this Order. The Discharger shall continue sampling for its receiving water and effluent according to its approved sampling plan, if it has not completed the requirements.

Monitoring Requirements (Self-Monitoring Program)

83. Monitoring Requirements (Self-Monitoring Program – Attachment E). The SMP includes monitoring at the outfall for conventional, non-conventional, toxic pollutants, and acute and chronic toxicity. Monitoring for conventional and non-conventional pollutants has remained the same as the previous permit except that the effluent settleable solids monitoring is no longer required since the settleable solids limitations have been eliminated. In addition to the plant influent and effluent flow monitoring, the Discharger shall also monitor the internal flows to treatment units and the oxidation ponds. This information will be used to evaluate the Discharger's performance when blending occurs. Monthly monitoring is required for copper, mercury, nickel, selenium, and cyanide to determine compliance with effluent limitations. Once per year monitoring for dioxins is required to provide information for TMDL development. Once per year monitoring for bis(2-ethylhexyl)phthalate is required to provide more data for future permit amendment or permit reissuance. The Discharger shall also continue its 13267 monitoring for the effluent and receiving water for all 126 priority pollutants according to its sampling plan. The results shall be submitted 180 days before the permit expires with the permit renewal application. With respect to effluent monitoring, the monitoring and reporting requirements of this Order supercede the requirements of the Executive Officer's August 6, 2001 letter.

The Discharger shall also report its collection system overflows according to the Regional Water Board Executive Officer letter, dated November 15, 2004 (see **Attachment I**).

Pretreatment Program

84. *Pretreatment Program.* The Discharger has implemented and is maintaining an effective U.S. EPA approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403) and the requirements specified in **Attachment F** "Pretreatment Requirements". Order No. 01-059 amended the Discharger's permit (as well as fourteen other dischargers' permits in the Region) to reflect the Regional Water Board's most recent pretreatment requirements. The requirements of this Order supercede Order No. 01-059.

Optional Studies

85. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of interim mass limitations that are based on treatment plant performance, provisions for aggressive source control, feasibility studies for wastewater reclamation, and treatment plant optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can be achieved only through a mass offset program. This Order includes an optional provision for a mass offset program.
86. *Copper Translator Study.* An optional copper translator study is included in this permit to encourage the Discharger to develop a site-specific translator value for copper in place of the default translator values established in the SIP. The SIP, Section 1.4.1, and the June 1996 U.S. EPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, describe this process and provide guidance on how to establish a site-specific translator. During 2000 and 2001, the Discharger conducted some monitoring for the development of site-specific translators for copper and nickel. However, the sampling data are not sufficient to characterize seasonal variations. The Discharger may collect more data to augment the previous data set to develop the translators. The new translators to be developed, if approved by the Executive Officer, will be used for future permit reissuance.

O & M Manual

87. The Discharger maintains an Operations and Maintenance Manual (O & M Manual) to provide the WWTP and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the manual shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.

CEQA Exemption, Notification, and Public Hearing

88. *NPDES Permit.* This Order serves as an NPDES permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.
89. *Notification.* The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to reissue requirements for the existing discharges and have been provided an opportunity to submit their written views and recommendations. Regional Water Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.

90. *Public Hearing.* The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of wastewater at any point where it does not receive a minimum initial dilution of 10:1, or into dead-end slough and similar confined waters is prohibited, except as defined below. Based on findings above, an exception to this prohibition is granted for the discharge of treated effluent during the wet season. Discharge of treated wastewater at a location or in a manner different from that described in the findings of this Order is prohibited.
2. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the WWTP or from the collection system or pump stations tributary to the WWTP, is prohibited, except as authorized by this Order.

The discharge of blended wastewater, that is, biologically treated wastewater blended with wastewater that has been diverted around biological treatment units or advanced treatment units, is allowable only (1) during the wet season, from October 21 through April 30, and (2) when the discharge complies with the effluent and receiving water limitations contained in this Order. Furthermore, the Discharger shall operate the WWTP as designed and in accordance with the O & M Manual developed for the WWTP. This means that the Discharger shall optimize storage and use of equalization units, and shall fully utilize the biological treatment units and advanced treatment units, if applicable. The Discharger shall report these incidents of blended effluent discharges in routine monitoring reports, and shall conduct monitoring of this discharge as specified elsewhere in this Order.

3. Average dry weather flow to the plant greater than 5.2 million gallons per day is prohibited. This Order authorizes increasing the permitted average dry weather flow limit up to 5.7 mgd in Phase 1, and up to 6.7 mgd in Phase 2 upon written approval from the Executive Officer, subject to the completion of the tasks identified in Provision F.16. The average dry weather flow to the new treatment plant greater than 6.7 mgd is prohibited. Average dry weather flow shall be determined for process water measured over a period of three consecutive dry weather months each year.
4. Discharge to the Petaluma River is prohibited during the dry season period each year, from May 1 through October 20, unless the Discharger submits a request, which may be submitted over the telephone to the Executive Officer and the Executive Officer approves it. This report must fully explain the need for discharges during this period (e.g., high flows related to late spring or early fall storm events, when reclamation is not feasible). Discharges during this period must meet all effluent limitations and monitoring requirements.
5. Discharges of water, materials, or wastes other than storm water, which are not otherwise authorized by this NPDES permit, to a storm drain system or waters of the State are prohibited.
6. Storm water discharge from the facility grounds shall not cause pollution, contamination, or nuisance.

B. EFFLUENT LIMITATIONS

The term "effluent" in the following limitations means the fully treated wastewater effluent from the Discharger's WWTP, as discharged to the Petaluma River. The effluent discharged to the Petaluma River shall not exceed the following limits:

1. Conventional Pollutants Effluent Limitations:

Table 3. Effluent Limits for Conventional Pollutants

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD ₅ , 20°C)	mg/L	30	45	--	--
Total Suspended Solids [1]	mg/L	45	65	--	--
Oil & Grease	mg/L	10	--	20	--
Chlorine Residual [2]	mg/L	--	--	--	0.0

[1] After the new WWTP is operational (a certification or letter shall be submitted to the Regional Water Board as required by Provision F.16), TSS effluent limits shall be as follows:

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
Total Suspended Solids	mg/L	30	45	--	--

[2] The chlorine residual requirement is defined as below the limit of detection in standard methods defined in *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfate dosage (which could be interpolated), and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positive chlorine residual exceedances are not violations of this permit limitation.

2. pH: The pH of the discharge shall not exceed 8.5 nor be less than 6.5. If the Discharger employs continuous pH monitoring, the Discharger shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied:
 - a. The total time during which the pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month.
 - b. No individual excursion from the required range of pH values shall exceed 60 minutes.

3. Total Coliform:

The Discharger shall comply with the following total coliform limitations:

- a. The moving median value for the MPN of total coliform bacteria in any five consecutive samples shall not exceed 23 MPN/100 mL; and
- b. Any single sample shall not exceed 240 MPN/100 mL.

The Discharger may use alternate limits of bacteriological quality instead of meeting 3.a and 3.b above if the Discharger can establish to the satisfaction of the Executive Officer through the performance of a special study that the use of the fecal coliform, enterococci, or *E. coli* limits will not result in unacceptable adverse impacts on the beneficial uses of the receiving water. During the Study, the Discharger is conditionally exempt from the total coliform limit during the data collection period. If there is a total coliform exceedance during the data collection period, the Discharger shall demonstrate that the exceedance is due to the study (in the process of dosage reduction); alternate bacteriological effluent limits are met, and receiving water quality objectives as specified in Table 3-1 for total coliform or fecal coliform are also met, in order for the exemption to apply (see Provision F.13).

4. 85 Percent Removal, BOD₅ and TSS: The arithmetic mean of the BOD (Five-day, 20°C) and total suspended solids values, by concentration, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean of the respective values for influent samples collected at approximately the same times during the same period.

5. Acute Toxicity:

- a. Representative samples of the discharge shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with Provision F.9.

The survival of organisms in undiluted effluent from parallel 96-hour static renewal* bioassays shall be an eleven (11) sample median value of not less than 90 percent survival, and an eleven (11) sample 90 percentile value of not less than 70 percent survival.

* After the new WWTP is operational, the Discharger shall switch to flow-through bioassay test unless it submits a request to the Executive Officer demonstrating why flow-through is not feasible and the Executive Officer approves it.

- b. These acute toxicity limits are further defined as follows:

11 sample median: Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or less bioassay tests show less than 90 percent survival.

90th percentile: A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or less bioassay tests show less than 70 percent survival.

- c. Bioassays shall be performed using the most up-to-date U.S. EPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms", currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

- d. If the Discharger demonstrates to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses, then such toxicity does not constitute a violation of this effluent limitation.

6. Chronic Toxicity:

- a. Compliance with the Basin Plan narrative toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the treated effluent meeting test acceptability criteria and Provision F.10:
 - (1) Routine monitoring;
 - (2) Accelerated monitoring to a monthly basis after exceeding a three sample median value of 1 chronic toxicity (1 TUc)³ or a single sample maximum of 2 TUc or greater.
 - (3) Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in "2", above;
 - (4) Initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) work plan if accelerated monitoring confirms consistent toxicity above either "trigger" in "2", above;
 - (5) Return to routine monitoring after appropriate elements of TRE work plan are implemented and either the toxicity drops below "trigger" level in "2", above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.
- b. *Test Species and Methods:* The Discharger shall conduct routine monitoring with the most sensitive species determined during the most recent chronic toxicity screening performed by the Discharger and approved by the Executive Officer. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in **Attachment A** of the SMP. In addition, bioassays may be conducted in compliance with the most recently promulgated test methods, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms," currently third edition (EPA-821-R-02-014), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

7. Toxic Substances Effluent Limitations:

The discharge of effluent containing constituents in excess of the following limitations is prohibited:

³ A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limits for chronic toxicity

Table 4. Effluent Limits for Toxic Pollutants ^{[1][2]}

Constituents		WQBELs		Interim Limits	
Pollutants	Notes	Daily Maximum (MDEL) $\mu\text{g/L}$	Monthly Average (AMEL) $\mu\text{g/L}$	Daily Maximum $\mu\text{g/L}$	Monthly Average $\mu\text{g/L}$
Copper	[3]	5.2	3.3	7.9	
Mercury	[4]	0.040	0.021		
Nickel			7.1		
Selenium		8.2	4.1		
Cyanide	[3][5]	1.0	0.5	14	

- [1] a. Compliance with these limitations is intended to be achieved through secondary treatment and, as necessary, pretreatment and source control.
- b. All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer. The Discharger is in violation of the limitation if the discharge concentration exceeds the effluent limitation and the Reporting Level (as defined in the SIP) for the analysis for that constituent.
- c. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).
- d. All metal limitations are total recoverable.
- [2] A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limits only if it exceeds the effluent limitation and the Reporting Level for that constituent. The table below indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes.

Constituent	ML ($\mu\text{g/L}$)
Copper	0.5
Mercury	0.002
Nickel	1
Selenium	1
Cyanide	5

- [3] The interim limitations for copper shall remain in effect until May 17, 2010, and for cyanide until April 27, 2010 or until the Regional Water Board amends the limitation based on SSOs. WQBELs shall become effective on May 18, 2010 and April 28, 2010 for copper and cyanide, respectively.
- [4] Effluent mercury monitoring shall be performed by using ultra-clean sampling and analysis techniques, with a method detection limit of 0.002 $\mu\text{g/L}$ or lower.
- [5] Compliance may be demonstrated by measurement of weak acid dissociable cyanide.
8. Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the current mercury mass loading to the receiving water does not increase by complying with the following:

- a. **Mass limit:** The 12-month moving average annual load for mercury shall not exceed **0.6 kg/year**. This limit is retained from the previous Order. Compliance shall be calculated using moving average flows and concentrations from the entire year (during both discharge and reclamation months).
- b. **Mass trigger:** If the 12-month moving average monthly mass loading for mercury exceeds **0.0051 kg/month**, the actions specified in Provision F.7 shall be initiated. It was calculated from the highest of the moving average load taken from moving average flows times the corresponding moving average mercury concentrations (flows were set to zero if there was no river discharge). Failure to initiate and complete the actions will be considered a permit condition violation.
- c. **Compliance determination method:** The mass emission limit (or trigger) for mercury shall be calculated as follows:

Flow [1] = Running average of last 12 months of effluent flow in mgd, measured at E-001, prior to reuse or discharge to the Petaluma River.

Hg Conc. [2] = Running average of last 12 monthly mercury concentration measurements in $\mu\text{g/L}$ corresponding to the above flows, measured at E-001.

Mass emission limit, in kg/year = Flow \times Hg Conc. \times 1.3815

Mass emission trigger, in kg/month = Flow \times Hg Conc. \times 0.1151

- [1] For mass emission trigger calculation, if there is no river discharge during a calendar month, the flow is set to zero for the calculation.
 - [2] If there is no mercury effluent data, i.e., during non-discharge season, the concentration for that calendar month is set to blank in the spreadsheet. If more than one measurement is obtained in a calendar month, the average of these concentrations is used as the monthly value for that month. If the results are less than the method detection limit used, the concentrations are assumed to be equal to the method detection limit.
- d. The mercury TMDL and WLAs will supersede this interim mass emission limitation upon their adoption. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following adoption of the TMDL and WLA, if the requirements for an exception to the rule are met.

C. POND SPECIFICATIONS

1. A minimum freeboard of two feet shall be maintained in all ponds at all times. Exceptions to this requirement are allowed when an increase in pond storage capacity is needed just prior to, or during the reclamation season, providing there is no threat of overflow due to storm conditions or otherwise. During these periods when the storage capacity is needed, a freeboard of one foot shall be maintained, and the Discharger shall ensure that the higher pond levels do not threaten the integrity of the pond levees.
2. All ponds shall be protected from erosion, washout, and flooding from the maximum flood having a predicted frequency of once in 100 years.
3. The waste shall not cause significant degradation of any ground water so as to impair beneficial uses.

D. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State any one place within one foot of the water surface:
 - a. Dissolved Oxygen: 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
 - b. Dissolved Sulfide: 0.1 mg/L, maximum
 - c. pH: Variation from normal ambient pH by more than 0.5 pH units.
 - d. Un-ionized Ammonia: 0.025 mg/L as N, annual median
0.16 mg/L as N, max.
 - e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
3. The discharge shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board may revise and modify this Order in accordance with such more stringent standards.
4. Storm Water Discharge

- a. Storm water discharges shall not adversely impact human health or the environment.
- b. Storm water discharges shall not cause or contribute to a violation of any applicable water quality objective for receiving waters contained in the Basin Plan.

E. SLUDGE MANAGEMENT PRACTICES

1. All sludge generated by the Discharger must be disposed of in a municipal solid waste landfill, reused by land application, or disposed of in a sludge-only landfill in accordance with 40 CFR Part 503. If the Discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to the USEPA 180 days before start-up of the alternative disposal practice. All the requirements in 40 CFR 503 are enforceable by USEPA whether or not they are stated in an NPDES permit or other permit issued to the Discharger.
2. Sludge treatment, storage, and reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.
3. Duty to mitigate: The Discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.
4. The discharge of biosolids shall not cause waste material to be in a position where it is, or can be carried from the sludge treatment and storage site and deposited in the waters of the State.
5. The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.
6. For sludge that is applied to the land, placed on a surface disposal site, or fired in a biosolids incinerator as defined in 40 CFR 503, the Discharger shall submit an annual report to the U.S. EPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR 503, postmarked February 15 of each year, for the period covering the previous calendar year.
7. Sludge that is disposed of in a municipal solid waste landfill must meet the requirements of 40 CFR 258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of, and the landfill(s) to which it was sent.
8. Permanent on-site sludge storage or disposal activities are not authorized by this permit. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.
9. Sludge Monitoring and Reporting Provisions of this Regional Water Board's "Standard Provisions and Reporting Requirements", dated August 1993, apply to sludge handling, disposal and reporting practices.

F. PROVISIONS

1. Permit Compliance and Rescission of Previous Waste Discharge Requirements

The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order immediately on the effective date of this NPDES Permit. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 98-076. Order No. 98-076 is hereby rescinded upon the effective date of this Order.

2. Effluent Characterization for Selected Constituents

The Discharger shall monitor and evaluate the discharge from Outfall E-001 for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter, according to its approved sampling plan submitted under the August 6, 2001 Letter. The Discharger shall monitor, at a minimum, one sampling event for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter, during the permit term. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under Effluent Monitoring for Major Dischargers.

Reporting: A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the Order expiration date. This final report shall be submitted with the application for permit reissuance.

3. Ambient Background Receiving Water Study

The Discharger shall continue to collect background ambient receiving water data. To fulfill this requirement, the Discharger shall submit data sufficient to characterize the concentration of each toxic pollutant listed in the CTR in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has mixed with the receiving waters.

Final Report: The Discharger shall submit a final report that presents all the data to the Regional Water Board 180 days prior to Order expiration. This final report shall be submitted with the application for permit reissuance.

4. Cyanide Compliance Schedule and SSO Study

The Discharger shall comply with the following tasks and deadlines:

Tasks	Compliance Date
a. <i>Compliance Schedule.</i> The Discharger should track relevant national studies, and participate in regional studies as described in findings (under Cyanide) above. Results from these studies should enable the Regional Water Board to determine compliance with final WQBELS during the next permit reissuance.	Annual progress reports as part of annual self-monitoring reports.
b. <i>SSO Study.</i> The Discharger shall actively participate in the development of regional SSOs for cyanide. Participation through BACWA studies satisfies this task.	Annual progress reports by cyanide work group due February 1st of each year until completion
c. Conduct evaluation of compliance attainability with limitations derived using new objectives.	Within 3 years of effective date of this Order.

5. Copper Study and Schedule - Regional Site-Specific Objective Study for Copper

The Discharger shall continue its participation in the regional discharger-funded effort to develop site-specific saltwater aquatic life-based WQOs for copper in San Francisco Bay north of the Dumbarton Bridge. The Discharger shall also participate in the development of a Copper Management Strategy (CMS), acceptable to the Executive Officer, designed to ensure that copper concentrations will not increase unacceptably in the receiving water as a result of controllable discharges. The CMS will describe baseline actions for wastewater and storm water dischargers and a program of additional monitoring and actions to be taken by those dischargers, triggered by specified increases in ambient copper concentrations.

6. Disinfection Effectiveness Evaluation and Study

The Discharger shall comply with the following tasks and deadlines:

Tasks	Compliance Date
a. The Discharger shall submit a study plan to evaluate the effectiveness of the disinfection system, investigate possible causes of historical bacterial limitation exceedances, and propose feasible corrective actions, a schedule should also be included to implement the corrective actions.	Within 90 days after permit becomes effective.
b. Upon approval by the Executive Officer, or after 45 days of study plan submittal if the Executive Officer has not commented, the Discharger shall start implementing the approved study plan.	Within 30 days after the study plan is approved by the Executive Officer.
c. The Discharger shall submit a report, acceptable to the Executive Officer, summarizing study results and findings.	Within 6 months after completion of study plan.

If the Discharger demonstrates that there are no feasible remedies to address total coliform violations before the new WWTP is built, the Discharger shall propose a schedule with justifications to implement effective measures until the new WWTP is operational.

7. Pollution Prevention and Pollutant Minimization Program

- a. The Discharger shall continue to improve its existing Pollution Prevention Program to reduce loadings of pollutants to the plant and therefore to the receiving waters.
- b. The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each year. Annual reports shall cover January through December of the preceding year. Annual reports shall include at least the following information:
 - i. *A Brief Description of the Plant, Plant Processes, and Service Area.*
 - ii. *A Discussion of the Current Pollutants of Concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen. In particular, the Discharger shall address those pollutants for which there have been granted compliance schedules, specifically, copper and cyanide.

- iii. *Identification of Sources for the Pollutants of Concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.
 - iv. *Identification of Tasks to Reduce the Sources of the Pollutants of Concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks itself or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so.
 - v. *Outreach to Employees.* The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the plant. The Discharger may provide a forum for employees to provide input to the Program.
 - vi. *Continuation of Public Outreach Program.* The Discharger shall prepare a public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach program, conducting plant tours, and providing public information in newspaper articles or advertisements, radio, television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The Discharger shall coordinate with other agencies as appropriate.
 - vii. *Discussion of Criteria Used to Measure the Program's and Tasks' Effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iv), b. (v), and b. (vi).
 - viii. *Documentation of Efforts and Progress.* This discussion shall detail all the Discharger's activities in the Pollution Prevention Program during the reporting year.
 - ix. *Evaluation of Program's and Tasks' Effectiveness.* The Discharger shall use the criteria established in b. (vii) to evaluate the Program's and tasks' effectiveness.
 - x. *Identification of Specific Tasks and Time Schedules for Future Efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the plant, and subsequently in its effluent.
- c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:
- i. A sample result is reported as detected, but not quantified (less than the Minimum Level) and the effluent limitation is less than the reported Minimum Level,
 - ii. A sample result is reported as not detected (less than the Method Detection Limit) and the effluent limitation is less than the Method Detection Limit; or,

iii. The dioxin TEQ exceeds the WQO (0.014 pg/L); then

The Discharger shall expand its existing Pollution Prevention Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant (1) when there is evidence that it is present in the effluent above an effluent limitation and either (c)(i) or c(ii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

- d. If triggered by the reasons in c. above and notified by the Executive Officer, the Discharger's Pollution Prevention Program shall, within 6 months, also include the following:
- i. An annual review and semiannual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data.
 - ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer when it is demonstrated that influent monitoring is unlikely to produce useful analytical data.
 - iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation.
 - iv. Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy.
 - v. An annual status report that shall be sent to the Regional Water Board including the following:
 - (1) All Pollution Prevention monitoring results for the previous year
 - (2) A list of potential sources of the reportable priority pollutant(s)
 - (3) A summary of all actions undertaken pursuant to the control strategy
 - (4) A description of actions to be taken in the following year.
- e. To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue, modify, or expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
- f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in the Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

8. Mercury Mass Loading Reduction

If mass loading for mercury exceeds the trigger level specified in B.8 of this Order, then the following actions shall be initiated and subsequent reports shall include but not be limited to the following:

a. Notification: Any exceedance of the trigger specified in Effluent Limitation B.8.b shall be reported to the Regional Water Board in accordance with Section E.6.b. In the Standard Provisions and Reporting Requirements (August, 1993).

b. Identification of the problem: Resample to verify the increase in loading. If resampling confirms that the mass loading trigger has been exceeded, determine whether the exceedance is flow or concentration-related. If the exceedance is flow-related, identify whether it is related to changes in reuse, increases in the number of sewer connections, increases in infiltration and inflow (I/I), wet weather conditions, or unknown sources. If the exceedance is concentration-related, identify whether it is related to industrial, commercial, residential, or unknown sources.

c. Investigation of corrective action: Investigate the feasibility of the following actions:

- Improving public education and outreach
- Reducing inflow and infiltration (I/I)
- Increasing reuse

Within 60 days after confirmed exceedance of trigger, develop a plan and include a time schedule as short as practicable, acceptable to the Executive Officer, to implement reasonable actions to maintain mercury mass loadings at or below the mass loading trigger contained in Effluent Limitation B.8.b.

d. Investigation of aggressive prevention/reduction measures. In the event the exceedance is related to growth and the plan required under (c) above is not expected to keep mercury loads below the mass load trigger, the Discharger shall submit a plan, acceptable to the Executive Officer. The plan should include an initiative to work with the local planning department to investigate the feasibility and potential benefits of requiring water conservation, reuse, and dual plumbing for new development. This plan should be implemented as soon as practicable.

9. Whole Effluent Acute Toxicity

Compliance with acute toxicity requirements of this Order shall be achieved in accordance with the following:

- a. Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour static renewal bioassays.
- b. Test organisms shall be rainbow trout and fathead minnow tested concurrently during a screening period. Following receipt of the acute toxicity screening study, the Executive Officer will allow compliance monitoring with only one fish species (the most sensitive, if determined), if the Discharger can also document that the acute toxicity has been observed in only one fish species. If neither fish shows sensitivity, the Discharger may continue routine compliance testing using either fathead minnow or rainbow trout.
- c. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5th Edition. The Discharger shall switch to flow-through bioassays once the new WWTP is operational or the algae problem associated with the pond effluent is corrected, whichever is earlier.

10. Whole Effluent Chronic Toxicity

The Discharger shall monitor and evaluate the effluent from the treatment plant for chronic toxicity in order to demonstrate compliance with the Basin Plan narrative toxicity objective. Compliance with this requirement shall be achieved in accordance with the following.

- a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order.
- b. If data from routine monitoring exceed either of the following evaluation parameters, then the Discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall be performed on a monthly basis.
- c. Chronic toxicity evaluation parameters:
 - (1) A three sample median value of 1 TU_c ; and
 - (2) A single sample maximum value of 2 TU_c .
 - (3) These parameters are defined as follows:
 - (a) Three-sample median: A test sample showing chronic toxicity greater than 1 TU_c represents an exceedance of this parameter, if one of the past two or fewer tests also show chronic toxicity greater than 1 TU_c .
 - (b) TU_c (chronic toxicity unit): A TU_c equals $100/NOEL$ (e.g., If $NOEL = 100$, then toxicity = 1 TU_c). $NOEL$ is the no observed effect level determined from IC, EC, or $NOEC$ values.
 - (c) The terms IC, EC, $NOEL$ and $NOEC$ and their use are defined in **Attachment A** of the Self-Monitoring Program (SMP).
- d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed.
- e. If accelerated monitoring tests continue to exceed either evaluation parameter, then the Discharger shall initiate a chronic toxicity reduction evaluation (TRE).
- f. The TRE shall be conducted in accordance with the following:
 - (1) The Discharger shall prepare and submit a TRE workplan to the Regional Water Board for Executive Officer approval. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.
 - (2) The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.
 - (3) The TRE shall be conducted in accordance with an approved workplan.

- (4) The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including U.S. EPA guidance materials. TRE should be conducted as a tiered evaluation process, such as summarized below:
 - (a) Tier 1 consists of basic data collection (routine and accelerated monitoring).
 - (b) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
 - (c) Tier 3 consists of a toxicity identification evaluation (TIE).
 - (d) Tier 4 consists of evaluation of options for additional effluent treatment processes.
 - (e) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
 - (f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
- (5) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.
- (6) The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies should be employed.
- (7) As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.
- (8) Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
- (9) The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.
- g. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in **Attachment A** of the SMP. The Discharger shall comply with these requirements as applicable to the discharge.

11. Sanitary Sewer Management Plan

The Discharger shall fully participate in the sanitary sewer overflow control program developed by the Regional Water Board in collaboration with BACWA. The Discharger shall report sanitary sewer overflows electronically and develop and implement a discharger-specific sanitary sewer management plan (SSMP) as specified in the Regional Water Board's letters dated November 15, 2004 and July 7, 2005, respectively.

12. Optional Mass Offset

If the Discharger can demonstrate that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water cannot be achieved through economically feasible measures such as aggressive source control, feasibility studies for wastewater reuse, and treatment plant optimization, but only through a mass offset program, the Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

13. Optional Receiving Water Beneficial Use and Alternative Bacteriological Limits Study

To develop information that may be used in a subsequent Order amendment to establish alternative bacteria limits, the Discharger may conduct a receiving water beneficial use study to assess the appropriateness of testing for enterococci, fecal coliform and/or *E. coli* instead of total coliform concentrations in compliance with Basin Plan bacteriological objectives. Depending on the results of the final study, the Order may be amended to specify total coliform, enterococci, fecal coliform, or *E. coli* limits.

Tasks	Compliance Date
a. Develop a study plan to include, a receiving water bacteria study, selection and justification for alternative bacteriological limit (enterococci, fecal coliform, or <i>E. coli</i>), and tasks and schedules necessary to assess the beneficial uses attributed to the outfall location. The study shall also include other basic elements, but not limited to, a survey of the river and beach in the vicinity of the discharge; monitoring of the receiving water body to demonstrate compliance with water quality objectives for bacteria by using alternate effluent limitations for the discharge.	At the Discharger's discretion during the Order term.
b. Upon approval by the Executive Officer, or after 45 days of study plan submittal if the Executive Officer has not commented, the Discharger shall commence work in accordance with the study plan and time schedule submitted pursuant to the approved plan.	As specified in the study plan.
c. Submit a final report, acceptable to the Executive Officer, documenting the results of the beneficial use investigation described above.	As specified in the study plan.

During the study, the Discharger is conditionally exempt from the total coliform limit during the data collection period unless the following condition is met: If there is a total coliform exceedance during the data collection period, the Discharger shall demonstrate that the exceedance is due to the study (in the process of dosage reduction); alternate bacteriological effluent limits are met, and receiving water quality objectives as specified in Table 3-1 for total coliform or fecal coliform are also met, in order for the exemption to apply.

14. Optional Copper Translator Study and Schedule

To develop information that may be used to establish WQBELs based on dissolved criteria for copper, optionally, the Discharger may implement a sampling plan to collect data for development of dissolved-to-total translators for copper in the Discharger's receiving water - Petaluma River. If the Discharger chooses to proceed with the study, the work shall be performed in accordance with the following tasks:

Tasks	Schedule
a. Develop a study plan. The study plan shall outline data collection for establishment of dissolved-to-total copper translators, as discussed in the findings. The study plan shall provide for development of translators in accordance with the State Water Board's SIP, U.S. EPA guidelines, California Department of Fish and Game approval, and any relevant portions of the Basin Plan, as amended.	At the Discharger's discretion during the Order term.
b. If the Discharger conducts a translator study, it will use field sampling data approximate to the discharge point and in the vicinity of the discharge point, or as otherwise provided for in the approved workplan.	As specified in the study plan.
c. A final report, acceptable to the Executive Officer, should be submitted, documenting the results of the copper translator study.	As specified in the study plan.

The study may include any other site-specific information that the Discharger would like the Regional Water Board to consider in the development of a water quality-based effluent limit for copper. The Discharger may also collect data for development of other metal translators, such as nickel, during this study.

15. Status Reports on New or Upgraded Facility

The Discharger shall submit status reports annually until the new or upgraded facility is fully operational, and this permit is amended to incorporate new information relevant to that facility. These status reports shall provide detailed discussion of progress made towards finalization of the design, construction, and permitting of the new or upgraded facility, along with projected schedules for future actions. The status report may be submitted as part of the annual self-monitoring report.

After the new WWTP construction is completed and the WWTP is certified to be operational, the Discharger shall submit to the Regional Water Board a letter indicating the official operation time of the new WWTP.

16. Permitted Treatment Plant Flow Increase

The permitted average dry weather flow capacity of the plant identified in Prohibition A.3 of this Order may be increased to either 5.7 mgd, or 6.7 mgd by written approval from the Executive Officer, in accordance with the following conditions:

- Completion of the proposed improvements to the existing plant or construction of the new or upgraded WWTP.
- Facility capacity and reliability: Documentation of adequate reliability, capability and performance of the wastewater facilities in order to maintain compliance with waste discharge requirements. Hydraulic and organic loading capacities of the treatment facilities shall be evaluated by appropriate combinations of desk-top analyses and treatment process stress testing to simulate design peak loading conditions. Evaluation shall include treatment process operations

under both dry weather and wet weather design flow conditions, and effluent disposal capacity including storage and discharge to land through reuse.

- c. Compliance with all applicable provisions of the California Environmental Quality Act (California Public Resources Code Division 13, Chapter 3, Section 21100 et seq.).
- d. Adequate financial provisions to ensure adequate operation and maintenance of the wastewater facilities.
- e. Documentation of completion or implementation of the above measures, to the Executive Officer's satisfaction.

17. Storm Water Pollution Prevention Plan (SWPPP)

The Discharger shall continue to implement its Storm Water Pollution Prevention Plan (SWPPP) in accordance with the attached "Standard Storm Water Provisions". The SWPPP shall be reviewed and updated as appropriate by October 1 of every year. Full compliance with the "Standard Storm Water Provisions" shall be an enforceable requirement of this permit. The SWPPP shall include a storm water monitoring program, designed to meet the following objectives:

- a. To monitor the quality of storm water discharges relative to Discharge Prohibitions and Receiving Water Limitations.
- b. To aid in the implementation of the SWPPP.
- c. To measure the effectiveness of control measures and management practices in removing pollutants in storm water discharge.

18. Pretreatment Program

The Discharger shall implement and enforce its approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403), pretreatment standards promulgated under Sections 307(b), 307(c) and 307(d) of the Clean Water Act, and the requirements in **Attachment F**, "Pretreatment Requirements". The Discharger's responsibilities include but are not limited to:

- a. Enforcement of National Pretreatment Standards of 40 CFR 403.5 and 403.6;
- b. Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations (40 CFR Part 403) and its approved pretreatment program;
- c. Submission of reports to U.S. EPA, the State Water Board, and the Regional Water Board, as described in Attachment F "Pretreatment Requirements".

The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this permit. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or the U.S. EPA may take enforcement actions against the Discharger as authorized by the Clean Water Act.

19. Wastewater Facilities, Review and Evaluation, and Status Reports

- a. The Discharger shall operate and maintain its wastewater collection, treatment, and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.
- b. The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a. above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its wastewater facilities and operation practices, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects.

20. Operations and Maintenance Manual, Review and Status Reports

- a. The Discharger shall maintain an O & M Manual as described in the findings of this Order for the Discharger's wastewater facilities. The O & M Manual shall be maintained in usable condition, and available for reference and use by all applicable personnel.
- b. The Discharger shall regularly review, revise, or update, as necessary, the O & M Manual(s) so that the document(s) may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its O&M manual, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to, its operations and maintenance manual.

21. Contingency Plan, Review and Status Reports

- a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (available online—see Standard Language and Other References Available Online, below), and as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
- b. The Discharger shall regularly review, and update as necessary, the Contingency Plan so that the plan may remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its contingency plan review and update. The Discharger shall also include, in each annual self-monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to, its contingency plan.

22. 303(d)-Listed Pollutants, Site-Specific Objective and TMDL Status Review

The Discharger shall participate in the development of a TMDL or SSO for copper, cyanide, mercury, 4,4'-DDE, dioxin TEQ, and dieldrin. By January 31 of each year, the Discharger shall submit an update to the Regional Water Board to document its participation efforts toward development of the TMDL(s) or SSO(s). The Discharger can submit updates through the regional BACWA studies for these pollutants. Regional Water Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development or adoption.

23. New Water Quality Objectives

As new or revised WQOs come into effect for the Bay and contiguous waterbodies (whether statewide, regional, or site specific), effluent limitations in this Order will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs.

24. Self-Monitoring Program

The Discharger shall comply with the SMP for this Order as adopted by the Regional Water Board. The SMPs may be amended by the Executive Officer pursuant to U.S. EPA regulation 40 CFR 122.63.

25. Standard Provisions and Reporting Requirements

The Discharger shall comply with all applicable items of the attached Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (the Standard Provisions), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall apply.

26. Change in Control or Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board. To assume responsibility for and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions and Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, and a violation of the California Water Code.

27. Order Reopener

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

- (1) If present or future investigations demonstrate that the discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

- (2) If new or revised WQOs come into effect for the San Francisco Bay estuary and contiguous waterbodies (whether statewide, regional, or site specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;
- (3) If translator or other water quality studies provide new information and a basis for determining that a permit condition(s) should be modified.
- (4) If new or site-specific objectives for copper and/or cyanide are not anticipated to be effective by May 17, 2010 or April 27, 2010, respectively, and applicable regulations allow for an extension of the May 18, 2010 or April 28, 2010 compliance schedules for the WQBELs contained in this Order, the Order may be modified to shorten or extend the compliance schedule.

The Discharger may request Order modification based on (2), (3), and (4) above or on any other valid legal basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis, if applicable.

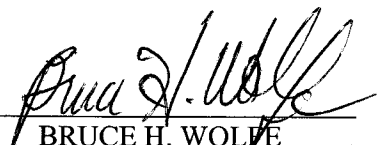
28. NPDES Permit

This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on October 20, 2005, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the Order shall not become effective until such objection is withdrawn.

29. Order Expiration and Reapplication

- a. This Order expires on October 20, 2010.
- b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data including conventional pollutant data from no less than the most recent three years, and of toxic pollutant data no less than from the most recent five years, in the discharge and receiving water. Additionally, the Discharger must include with the application the final results of any studies that may have bearing on the limits and requirements of the next permit. Such studies, for example, may include dilution studies, translator studies and alternate bacteria indicator studies.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 19, 2005.



BRUCE H. WOLFE
Executive Officer

Attachments

- A. Discharge Facility Location Map (Existing Plant)
- B. Discharge Facility Treatment Process Flow Diagram (Existing Plant)
- C. Discharge Facility Location Map (Future New Plant)
- D. Discharge Facility Treatment Process Flow Diagram (Future New Plant)
- E. Self-Monitoring Program, Part B
- F. Pretreatment Requirements
- G. Fact Sheet
- H. Discharger's Feasibility Study
- I. Executive Officer's Letter, November 15, 2004
- J. The following documents are part of this Order but are not physically attached due to volume. They are available on the Internet at: <http://www.waterboards.ca.gov/sanfranciscobay/Download.htm>.
 - Self-Monitoring Program, Part A (August 1993)
 - Standard Provisions and Reporting Requirements, August 1993
 - Regional Water Board Resolution No. 74-10
 - Statistical Analysis of Pooled Data from Regionwide Ultraclean Mercury Sampling for Municipal Dischargers, June 2001
 - August 6, 2001 Regional Water Board staff letter, "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy"

City of Petaluma
NPDES Permit NO. CA 0037810
Order No. R2-2005-0058

Attachment A

**Discharge Facility Location Map
(Existing Plant)**



2000 ft
500 m

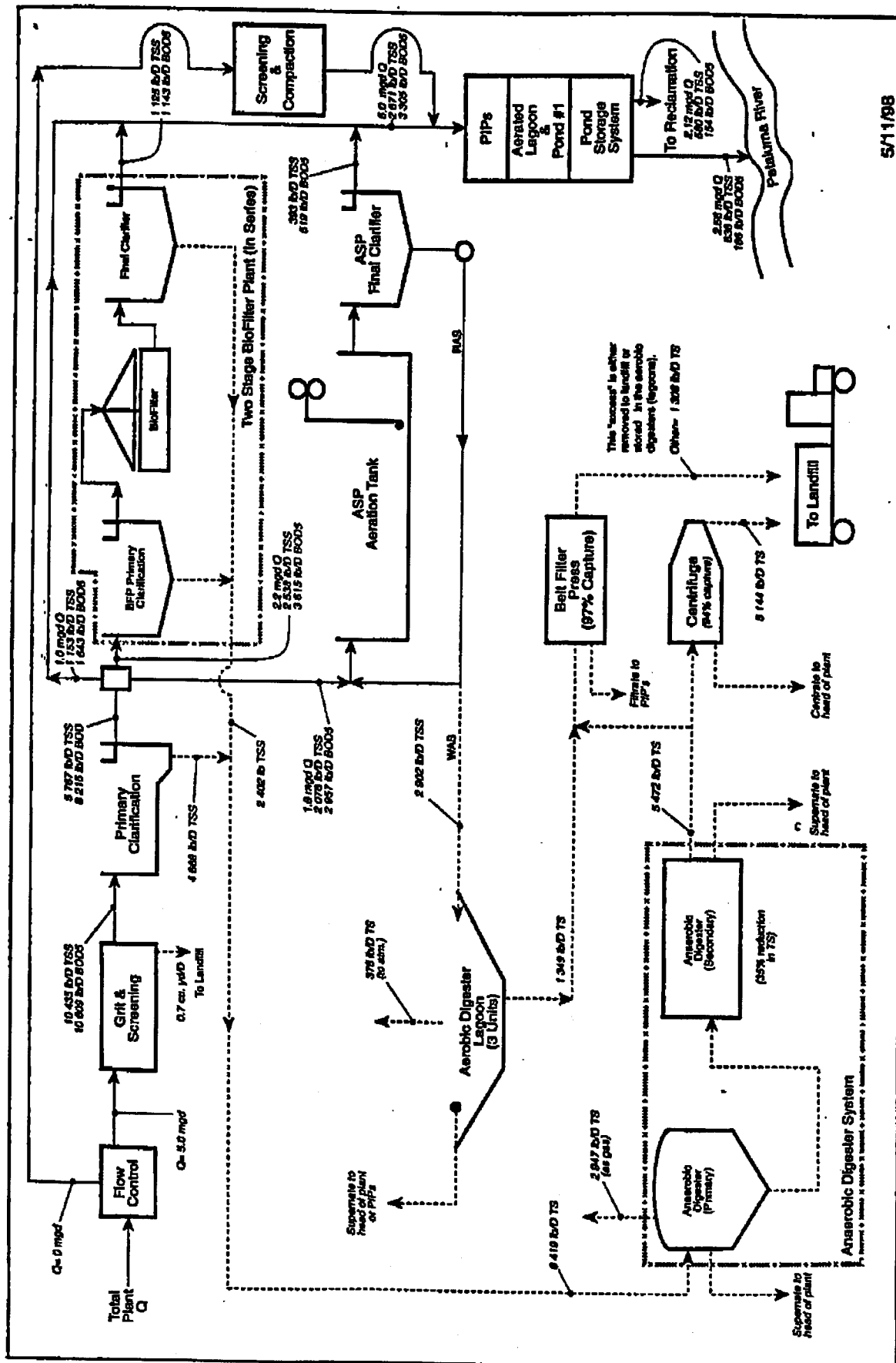


Map Satellite Hybrid

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

Attachment B

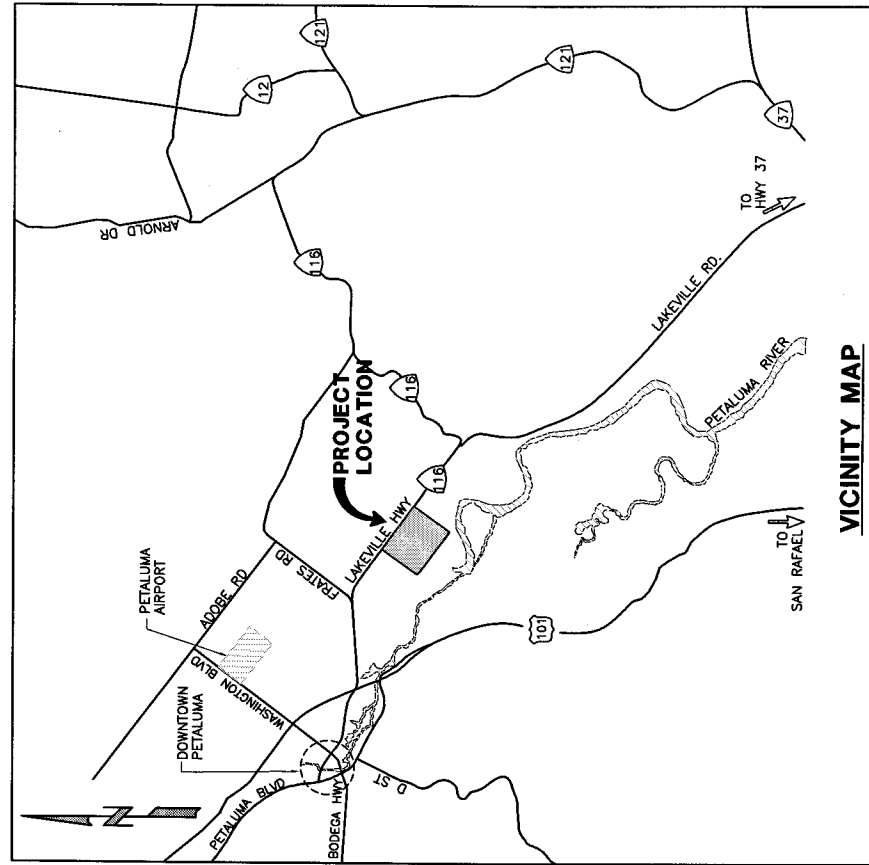
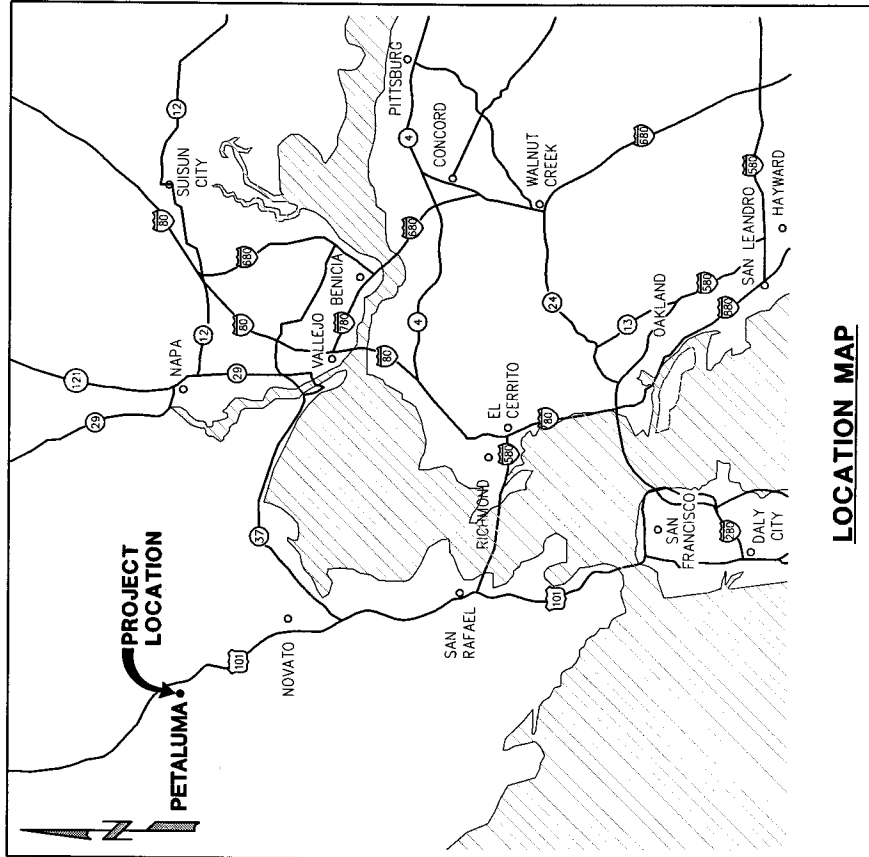
**Discharge Facility Treatment Process Diagram
(Existing Plant)**



City of Petaluma
NPDES Permit NO. CA 0037810
Order No. R2-2005-0058

Attachment C

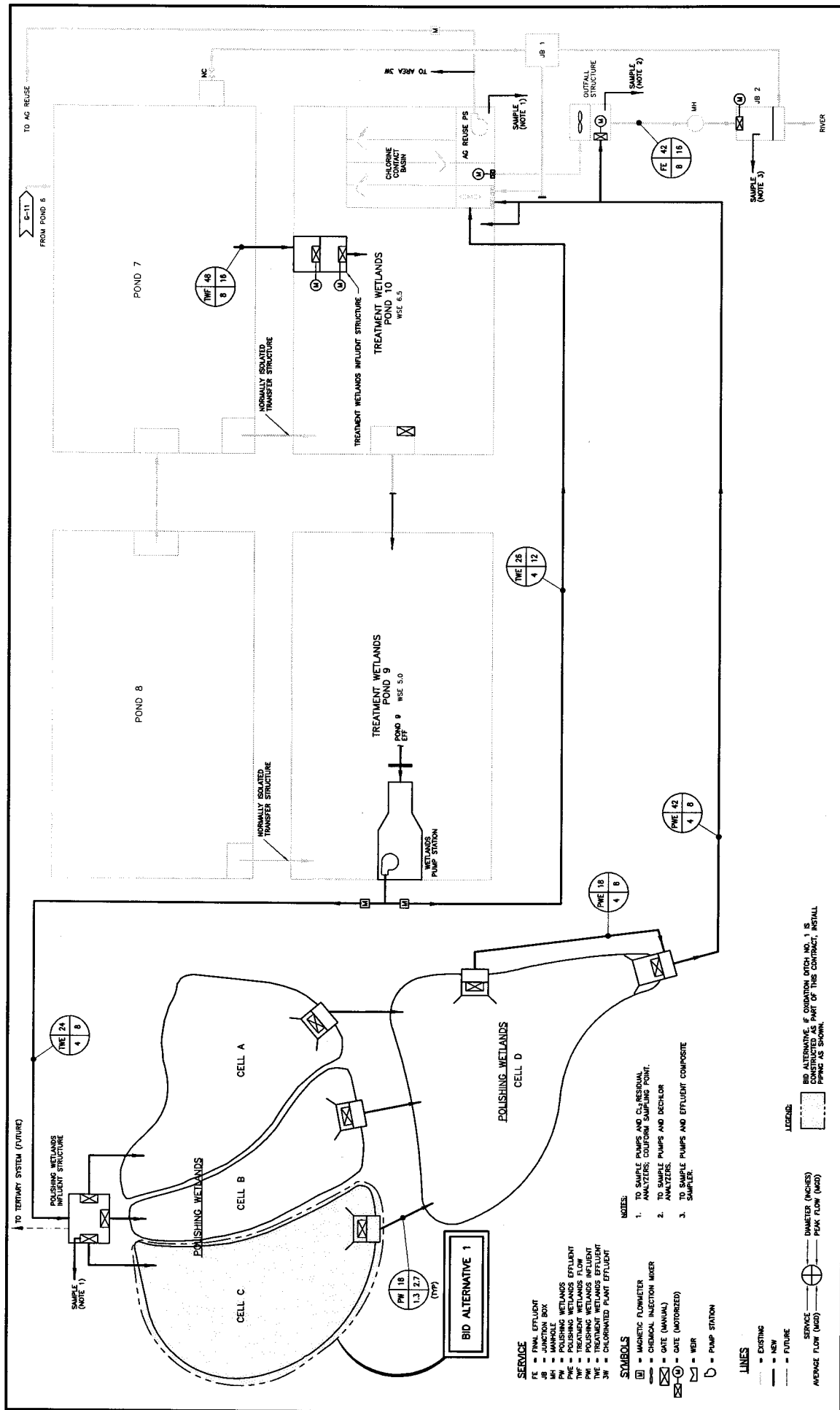
**Discharge Facility Location Map
(Future New Plant)**

[illegible]

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

Attachment D

**Discharge Facility Treatment Process Diagram
(Future New Plant)**



CITY OF PETALUMA		ELLUS CREEK WATER RECYCLING FACILITY		ORIGINAL	
CHLORINE CONTACT BASIN AND WETLANDS		PLANT FLOW SCHEMATIC		G-12	
JOB NO. 8088.10		DRAWING NO. G-12		SHEET NO. 13 OF 740	
VERIFY BOBLES		IF NOT SEE FOR AS THE SHEET, ADJUST BOBLES ACCORDINGLY			



City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

Attachment E
Self-Monitoring Program

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CITY OF PETALUMA
WATER POLLUTION CONTROL PLANT
SONOMA COUNTY

ORDER NO. R2-2005-0058
NPDES PERMIT NO. CA0037810

Consists of:

Part A (not attached)
Adopted August 1993

and

Part B (Attached)
Adopted: October 19, 2005
Effective: October 20, 2005

Note: Part A, Standard Provisions and Reporting Requirements for NPDES Surface Water Discharger Permits (dated August 1993), and Resolution No. 74-10 referenced in this Self-Monitoring Program are not attached but are available for review or download on the Regional Water Board's website at www.waterboards.ca.gov/sanfranciscobay/

SELF-MONITORING PROGRAM, PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

<u>Station</u>	<u>Description</u>
A-001	At any point in the treatment facility's headworks at which all waste tributary to the system is present, and preceding any phase of treatment.

B. EFFLUENT

<u>Station</u>	<u>Description</u>
E-001	At any point in the outfall from the treatment facility between the point of discharge and the point at which all flow tributary to that outfall is present. (May be the same as E-001-D).
E-001-D	At any point in the disinfection facilities for flow E-001, at which point adequate contact with the disinfectant is assured.

C. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
C-1	At a point in the Petaluma River directly above the center of the diffuser.
C-2A	At points in the Petaluma River located 500 upstream and
C-2B	downstream, respectively, of the center of the diffuser.
C-R	At a point in the Petaluma River located 2,000 feet downstream from the diffuser.

D. LAND OBSERVATIONS

<u>Station</u>	<u>Description</u>
P-1 through P-'n'	Located along the corners and midpoints of the perimeter of the waste treatment facilities at equidistant intervals, not to exceed 200 feet. (A sketch showing the locations of these stations will accompany each annual report).

E. OVERFLOWS AND BYPASSES

Station

Description

O-1 through O-'n'

At points in the collection system including manholes, pump stations, or any other location where overflows and bypasses occur.

II. SCHEDULE OF SAMPLING, ANALYSIS, AND OBSERVATION

This Schedule of sampling, analyses, and observations shall be that given in Table 1 of this self-monitoring program.

Table 1. Schedule of Sampling, Measurement, and Analysis [1][2][12]

Sampling Station:			A-1	E-001			E-001-D			C	P	O
Type of Sample:			C-24	G	C-24	Co	G	C-24	Co	G	Ob	Ob
Parameter	(units)	[notes]										
			Year round	While discharging to Petaluma River							Year round	Year round
Flow Rate	(mgd)		D			D						
[3]												
BOD ₅	(mg/L & kg/d)	[4]	3/W		3/W							
Total Susp. Solids	(mg/L & kg/d)	[4]	3/W		3/W							
Chlorine Residual	(mg/L)				Cont/H			Cont/H				
[5]												
Oil & Grease	(mg/L & kg/d)	[6]		M								
Total Coliform	(MPN/100 ml)						5/W					
Acute Toxicity	(% Surv.)							M				
[7]												
Chronic Toxicity	TUc							3M				
[8]												
Ammonia Nitrogen	(mg/L & kg/d)						M			M		
Conductivity	(mhos/cm)									M		
Unionized Ammonia	(mg/L as N)									M		
Turbidity	(NTU)						M			M		
pH	(standard units)						D			M		
Temperature	(°C)						D			M		
Dissolved Oxygen	(mg/L & % Sat)						D			M		
Sulfides, Total & Dissolved (mg/L)							D			M		
(if D.O. < 2.0 mg/L/l)												
Hardness	(mg/L as CaCO ₃)									M		
Total Dissolved Solids	(mg/L)									M		
Chlorophyll-a	(µg/L)									M		
Salinity (parts per thousand)										M		

Sampling Station:	A-1	E-001			E-001-D			C	P	O
Type of Sample: Parameter (units) [notes]	C-24	G	C-24	Co	G	C-24	Co	G	Ob	Ob
All Applicable Standard Observations									M	E[13]
Copper (µg/L & kg/month)			M							
Mercury (µg/L & kg/month)			M [9]							
Nickel (µg/L & kg/month)			M							
Selenium (µg/L & kg/month)			M							
Cyanide (µg/L & kg/month)		M								
2,3,7,8-TCDD and Congeners (µg/L) [10]		A								
Bis(2-ethylhexyl)phthalate (µg/L)		A								
All priority pollutants [11]	In accordance with Provision F.2 and F.3									

Legend for Table 1:

Types of Samples

Co = continuous
C-24 = 24-hour composite
G = grab
Ob = observations

Types of Stations

A = treatment plant influent
E = treatment plant effluent
O = Overflow and Bypass Points
P = Treatment Facility Perimeters
C = Receiving Water
L = Pond Levee Stations

Frequency of Sampling

D = once each day
W = once each week
M = once each month
A = once each year
Q = once each calendar quarter
(with at least 2-month intervals)
E = each occurrence
3/W = 3 days per week
5/W = 5 days per week
2H = every 2 hours
3M = every 3 months

Footnotes for Table 1:

- [1] Composite sampling: 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for inorganic pollutants may be combined prior to analysis. Samples for organic pollutants should be analyzed separately. If only one grab sample will be collected, it should be collected during periods of maximum peak flows. Samples shall be taken on random days.
- [2] Grab samples shall be collected coincident with composite samples collected for the analysis of regulated parameters.
- [3] Flow monitoring: Effluent flow shall be measured continuously at Outfall E-001 and recorded and reported daily. For effluent flows, the following information shall also be reported, monthly:
 - Daily: Daily Flow (MG)
 - Monthly: Average Daily Flow (MGD)
 - Monthly: Maximum Daily Flow (MGD)
 - Monthly: Minimum Daily Flow (MGD)

Monthly: Total Flow Volume (MG)

In addition, the Discharger shall record the internal flow rates to treatment units and oxidation ponds, and submit these records if required by the Regional Water Board after blending events occur.

- [4] The percent removal for BOD and TSS shall be reported for each calendar month in accordance with Effluent Limitation B.1.
- [5] Chlorine residual: Monitor dechlorinated effluent continuously or, at a minimum, every hour. Report, on a daily basis, both maximum and minimum concentrations, for samples taken both prior to, and following dechlorination. If continuous monitoring is used, the Discharger may record discrete readings from the continuous monitoring every hour on the hour, and report, on a daily basis, the maximum concentration observed following dechlorination. Total chlorine dosage (kg/day) shall be recorded on a daily basis.
- [6] Oil and grease: Each oil and grease sample event shall consist of a composite sample composed of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction and analysis.
- [7] Bioassays: Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the parameters specified in the U.S. EPA-approved method, such as pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be reported. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue as soon as practicable until compliance is demonstrated.
- [8] Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V and VI of the Self-Monitoring Program contained in this Order.
- [9] The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples. Use ultra-clean sampling (U.S. EPA 1669) to the maximum extent practicable and ultra-clean analytical methods (U.S. EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as U.S. EPA 245), if that alternative method has an ML of 2 ng/L or less.
- [10] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613; the analysis shall be capable of achieving one-half of the U.S. EPA MLs. Also, the Discharger shall participate as appropriate the regional collaborative effort with other POTWs to validate the 4-liter sample methodology for lowering the detection limit for dioxins. At a minimum, the Discharger is required to monitor once per year for the life of this Order. Alternative methods of analysis must be approved by the Executive Officer.
- [11] Sampling for all priority pollutants in the SIP is addressed in a letter dated August 6, 2001, from Regional Water Board Staff: "Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy" (not attached, but available for review or download on the Regional Water Board's website at www.waterboards.ca.gov/sanfranciscobay/).
- [12] Testing conducted under the pretreatment and reuse programs may be used to satisfy the monitoring requirements of this Order. All analyses shall be performed using current U.S. EPA methods, as specified in 40 CFR Part 136. Metals units are expressed as total recoverable metals.
- [13] See also III.H of this SMP for reporting and monitoring requirements for sanitary sewer overflows.

Tables 2 and 3 below list the pretreatment requirements.

Table 2. Pretreatment Monitoring Requirements

Constituents	Sample Locations And Frequency		
	Influent A-001	Effluent E-001	Biosolids
Hexavalent Chromium [1]	M	M	2/Y
Metals (As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn)	M	M	2/Y
Mercury	M	M	2/Y
Cyanide	M	M	2/Y
VOC	2/Y	2/Y	2/Y
BNA	2/Y	2/Y	2/Y

Table 3. Pretreatment Monitoring: Analytical Methods and Sample Type

Constituent	Suggested Analytical Methods
Hexavalent chromium [1]	Standard Methods 3500
Metals (As, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn)	GFAA, ICP, ICP-MS
Mercury	EPA 245, 1631
Cyanide	Standard Methods 4500-CN C or I, 9012A (SW846)
VOC	EPA 624

Legend for Tables 2 and 3:

- M = once each month
2/Y = twice each calendar year (at about 6 month intervals, once in the dry season, once in the wet season)
VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds

Footnote for Tables 2 and 3:

[1] Total chromium may be substituted for hexavalent chromium at the Discharger's discretion.

III. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM

- A. If any discrepancies exist between Part A and Part B of the SMP, Part B prevails.
- B. Section C.2.h of Part A shall be amended as follows:
- h. When any type of bypass occurs, except for bypasses that are consistent with Prohibition 2, composite samples shall be collected on a daily basis for all constituents at all affected discharge points that have effluent limits for the duration of the bypass.

When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facility that is consistent with Prohibition 2, during high wet weather inflow, the self-monitoring program shall include the following sampling and analyses, in addition to the Table 1 schedule:

- i. When bypassing occurs from any primary or secondary treatment unit(s), samples of the discharge shall be collected for the duration of the bypass event for BOD and TSS analyses in 24-hour composite or less increments, and continuous monitoring of flow, chlorine residual, and grabs for pH and coliform. Samples in accordance with proper sampling techniques for all other limited pollutant parameters shall also be collected and retained for analysis if necessary. If BOD or TSS values exceed the weekly average effluent limits, analysis of the retained samples shall be conducted for all these pollutant constituents that have effluent limits for the duration of the bypass, until the BOD and TSS are in compliance with their weekly effluent limitations. Holding times for these retain samples must be complied with.
- ii. When bypassing the chlorination process, grab samples shall be collected at least daily for total coliform analyses; and continuous monitoring of flow.
- iii. When bypassing the dechlorination process, grab samples shall be collected hourly for chlorine residual; and continuous monitoring of flow.

C. Sections C.3. and C.5. are satisfied by participation in the Regional Monitoring Program.

D. Modify Section F.1 as follows:

Spill Reports

A report shall be made of any spill of oil or other hazardous material. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:

During weekdays, during office hours of 8 am to 5 pm, to the Regional Water Board: (510) 622 - 5633, (510) 622-2460 (FAX).

During non-office hours, to the State Office of Emergency Services:
Current telephone number: (800) 852 - 7550.

A report shall be submitted to the Regional Water Board within five (5) working days following telephone notification, unless directed otherwise by Regional Water Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall contain information relative to:

E. Modify Section F.2 (first paragraph) as follows:

Reports of Plant Bypass, Treatment Unit Bypass and Order Violation

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41 (m)(4) as stated in Standard Provision A.13. In the event the Discharger violates or threatens to violate the

conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

[And add at the end of Section F.2 the following:]

The Discharger shall report in monthly and annual monitoring reports occurrence of blending events, their duration and certify that the blending was in compliance with effluent limits and O&M Plans.

F. Modify Section F.4 as follows:

Self-Monitoring Reports

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices. The report shall be submitted to the Regional Water Board on the first day of the second month after the reporting period ends. The annual report is due on February 1st.

[And add at the end of Section F.4 the following:]

- g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include: a formal request to invalidate the measurement; the original measurement in question; the reason for invalidating the measurement; all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.); and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Water Board staff, and will be based solely on the documentation submitted at this time.
- h. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The ERS format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the SMP, then the approved ERS requirements supersede.

G. Add at the end of Section F.5, Annual Reporting, the following:

- d. A plan view drawing or map showing the Discharger's facility, flow routing and sampling and observation station locations.

H. Add as Section F.6 the following:

Reports of Wastewater Overflows

Overflows of sewage from the Discharger's collection system, other than overflows specifically addressed elsewhere in this Order and SMP, shall be reported to the Regional Water Board in accordance the Regional Water Board's letter dated November 15, 2004.

I. Amend Section E as Follows:

Recording Requirements – Records to be Maintained

Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements including SMP requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or discharger offices) such that the records are accessible to Regional Water Board staff. These records shall be retained by the Discharger for a minimum of 3 years. The minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharges, or when requested by the Regional Water Board or by the Regional Administrator of U.S. EPA, Region IX.

Records to be maintained shall include the following:

1. Parameter Sampling and Analyses, and Observations

For each sample, analysis, or observation conducted, records shall include the following:

- a. Identity of the parameter.
- b. Identity of the sampling or observation station, consistent with the station descriptions given in this SMP.
- c. Date and time of the sampling or observation.
- d. Method of sampling (grab, composite, other method).
- e. Date and time the analysis was started and completed, and name of personnel or contract laboratory performing the analysis.
- f. Reference or description of the procedure(s) used for sample preservation and handling, and analytical method(s) used.
- g. Calculations of results.
- h. Analytical method detection limits and related quantitation parameters.
- i. Results of the analyses or observations.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

- a. Total flow or volume for each day.
- b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solid removal from the wastewater stream, records shall include the following:

- (1). Total volume and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested sludge), for each calendar month
- (2). Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

- b. For final dewatered sludge from the treatment plant as a whole, records shall include the following:
 - (1). Total volume and/or mass quantification of dewatered sludge, for each calendar month.
 - (2). Solids content of the dewatered sludge.
 - (3). Final disposition of dewatered sludge (point of disposal location and disposal method).
- 4. Disinfection Process
For the disinfection process, records shall be maintained documenting process operation and performance, including the following:
 - a. For bacteriological analyses:
 - (1). Date and time of each sample collected.
 - (2). Wastewater flow rate at the time of the sample collection.
 - (3). Results of the sample analyses (coliform count).
 - (4). Required statistical parameters of cumulative coliform values (e.g., moving the median or geometric mean for a number of samples or the sampling period identified in waste discharge requirements).
 - b. For the chlorination process, at least daily average values for the following:
 - (1). Chlorine residual in contact basin (mg/L).
 - (2). Chlorine dosage (gal/day).
 - (3). Dechlorination chemical dosage (kg/day).
- 5. Treatment Process Bypasses
A chronological log of all treatment process bypasses, other than wet weather bypasses addressed elsewhere in this Order and SMP, shall include the following:
 - a. Identification of the treatment process bypassed.
 - b. Date(s) and times of bypass beginning and end.
 - c. Total bypass duration.
 - d. Estimated total volume.
 - e. Description of, or reference to other report(s) describing, the bypass event, the cause, corrective actions taken, and any additional monitoring conducted.
- 6. Collection System Overflows
A chronological log of all collection system overflows shall include the following:
 - a. Location of the overflow.
 - b. Date(s) and times of overflow beginning and end.
 - c. Total overflow duration.
 - d. Estimated total volume.
 - e. Description of, or reference to other report(s) describing, the overflow event, the cause, corrective actions taken, and any additional monitoring conducted.

IV. ADDITIONS TO PART A OF SELF-MONITORING PROGRAM

Reporting Data in Electronic Format:

The Discharger has the option to submit all monitoring results in electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit the SMRs electronically, the following shall apply:

- a. *Reporting Method:* The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).
- b. *Modification of reporting requirements:* Reporting requirements F.4 in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Regional Water Board intends to modify Part A to reflect these changes.
- c. *Monthly Report Requirements:* For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the following:
 - i. The report shall be submitted to the Regional Water Board no later than the first day of the second month after the reporting period ends.
 - ii. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:
 - (1) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
 - (2) Details of the violations: parameters, magnitude, test results, frequency, and dates;
 - (3) The cause of the violations;
 - (4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;
 - (5) If the Discharger wishes to invalidate any measurement, the letter of transmittal will include: a formal request to invalidate the measurement; the original measurement in question; the reason for invalidating the measurement; all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.); and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Regional Water Board staff, and will be based solely on the documentation submitted at this time.
 - (6) *Signature:* The letter of transmittal shall be signed by the Discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and

complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

- (7) Compliance evaluation summary: Each report shall include a compliance evaluation summary. This summary shall include the number of samples in violation of applicable effluent limits.
- (8) Results of analyses and observations.
- (9) Tabulations of all required analyses and observations, including parameter, sample date, sample station, and test result.
- (10) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.
- (11) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

V. CHRONIC TOXICITY MONITORING REQUIREMENT

- A. Test Species and Frequency: The Discharger shall collect 24-hour composite samples of treatment plant effluent at the compliance point station specified in Table 1 of this Self-Monitoring Program, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

Test Species

Americamysis bahia (mysid)

Frequency

Quarterly (during discharge season)

- B. Conditions for Accelerated Monitoring: The Discharger shall accelerate the frequency of monitoring to monthly (or as otherwise specified by the Executive Officer) when there is an exceedance of either of the following conditions:
1. three sample median value of 1 TU_c, or
 2. single sample maximum value of 2 TU_c
- C. Methodology: Sample collection, handling and preservation shall be in accordance with EPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.
- D. Dilution Series: The Discharger shall conduct tests at 100%, 50%, 25%, 12.5%, and 6.25%. The "%" represents percent effluent as discharged.

VI. CHRONIC TOXICITY REPORTING REQUIREMENTS

- A. **Routine Reporting:** Toxicity test results for the current reporting period shall include at a minimum, for each test
1. sample date(s)
 2. test initiation date
 3. test species
 4. end point values for each dilution (e.g. number of young, growth rate, percent survival)
 5. NOEC value(s) in percent effluent
 6. IC₁₅, IC₂₅, IC₄₀, and IC₅₀ values (or EC₁₅, EC₂₅ ... etc.) in percent effluent
 7. TU_c values (100/NOEC, 100/IC₂₅, and 100/EC₂₅)
 8. Mean percent mortality (\pm s.d.) after 96 hours in 100% effluent (if applicable)
 9. NOEC and LOEC values for reference toxicant test(s)
 10. IC₅₀ or EC₅₀ value(s) for reference toxicant test(s)
 11. Available water quality measurements for each test (ex. pH, D.O., temperature, conductivity, hardness, salinity, ammonia)
- B. **Compliance Summary:** The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include the items listed above under Section A item numbers 1, 3, 5, 6(IC₂₅ or EC₂₅), 7, and 8.
- C. **Reporting Raw Data in Electronic Format:** The Discharger shall report all chronic toxicity data upon completion of chronic toxicity testing in the format specified in "Suggested Standardized Reporting Requirements for Monitoring Chronic Toxicity," February 1993, State Water Board. The data shall be submitted in either 3.5-inch floppy diskettes, compact disk (CD), or on optical disk (DVD).

VII. MONITORING METHODS AND MINIMUM DETECTION LEVELS

The Discharger may use the methods listed in the SIP, or alternative test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999).


VIII. SELF-MONITORING PROGRAM CERTIFICATION

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Water Board Order No. R2-2005-0058.
2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.

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3. Is effective as of October 20, 2005.



BRUCE H. WOLFE
EXECUTIVE OFFICER

Attachment: Chronic Toxicity

CHRONIC TOXICITY

DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

- A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25} . If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.
- C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

- A. The Discharger shall perform screening phase monitoring:
 - 1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or
 - 2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
 - 1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer.
 - 2. Two stages:

- a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached).
 - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.
 3. Appropriate controls.
 4. Concurrent reference toxicant tests.
- C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

Table 1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	(<i>Skeletonema costatum</i>) (<i>Thalassiosira pseudonana</i>)	Growth rate	4 days	1
Red alga	(<i>Champia parvula</i>)	Number of cystocarps	7-9 days	3
Giant kelp	(<i>Macrocystis pyrifera</i>)	Percent germination; germ tube length	48 hours	2
Abalone	(<i>Haliotis rufescens</i>)	Abnormal shell development	48 hours	2
Oyster Mussel	(<i>Crassostrea gigas</i>) (<i>Mytilus edulis</i>)	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins	(<i>Strongylocentrotus purpuratus</i> , <i>S. franciscanus</i>)	Percent fertilization	1 hour	2
Sand dollar	(<i>Dendraster excentricus</i>)			
Shrimp	(<i>Mysidopsis bahia</i>)	Percent survival; growth	7 days	3
Shrimp	(<i>Holmesimysis costata</i>)	Percent survival; growth	7 days	2
Topsmelt	(<i>Atherinops affinis</i>)	Percent survival; growth	7 days	2
Silversides	(<i>Menidia beryllina</i>)	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

Table 2. Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	<i>(Pimephales promelas)</i>	Survival; growth rate	7 days	4
Water flea	<i>(Ceriodaphnia dubia)</i>	Survival; number of young	7 days	4
Alga	<i>(Selenastrum capricornutum)</i>	Cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

Table 3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay ^[2]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater ^[1] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

[1] The freshwater species may be substituted with marine species if:

- (a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or
- (b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

[2](a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

- (b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

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Attachment F
Pretreatment Requirements

Pretreatment Program Provisions

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 et seq.), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Regional Water Board's Executive Officer or the EPA. The EPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.
2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
3. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:
 - i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);
 - ii) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);
 - iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);
 - iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and
 - v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.
4. The Discharger shall submit annually a report to the EPA Region 9, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.
5. The Discharger shall submit semiannual pretreatment reports to the EPA Region 9, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and EPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.
7. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31st of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

1) Cover Sheet

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include: the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR 403.12(j)).

2) Introduction

The Introduction shall include any pertinent background information related to the Discharger, the POTW and/or the industrial user base of the area. Also, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement Order (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Water Board or the EPA. A more specific discussion shall be included in the section entitled, "Program Changes."

3) Definitions

This section shall contain a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program.

4) Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

- a) a description of what occurred;
- b) a description of what was done to identify the source;
- c) the name and address of the IU responsible
- d) the reason(s) why the incident occurred;
- e) a description of the corrective actions taken; and

- f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

5) Influent, Effluent and Sludge Monitoring Results

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6) Inspection and Sampling Program

This section shall contain at a minimum, but is not limited to, the following information:

- a) Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
- b) Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7) Enforcement Procedures

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Water Board shall also be given.

8) Federal Categories

This section shall contain a list of all of the federal categories that apply to the Discharger. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9) Local Standards

This section shall include a table presenting the local limits.

10) Updated List of Regulated SIUs

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and a brief description of the individual SIU's type of business. The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11) Compliance Activities

- a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:
- (1) the number of inspections and sampling events conducted for each SIU;
 - (2) the quarters in which these activities were conducted; and
 - (3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:
 - (a) in consistent compliance;
 - (b) in inconsistent compliance;
 - (c) in significant noncompliance;
 - (d) on a compliance schedule to achieve compliance, (include the date final compliance is required);
 - (e) not in compliance and not on a compliance schedule;
 - (f) compliance status unknown, and why not.
- b) **Enforcement Summary:** This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:
- (1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.

- (6) Order to restrict/suspend discharge to the POTW.
- (7) Order to disconnect the discharge from entering the POTW.

12) Baseline Monitoring Report Update

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR 403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

13) Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to: legal authority, local limits, monitoring/ inspection program and frequency, enforcement protocol, program's administrative structure, staffing level, resource requirements and funding mechanism. If the manager of the pretreatment program changes, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

14) Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

15) Public Participation Summary

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

16) Sludge Storage and Disposal Practice

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

17) PCS Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) Other Subjects

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at U.S. EPA, the State Water Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX B: REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

The semiannual pretreatment reports are due on July 31st (for pretreatment program activities conducted from January through June) and January 31st (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Regional Water Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

1) Influent, Effluent and Sludge Monitoring

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

2) Industrial User Compliance Status

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

- a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.
- b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.
- c. Indicate the compliance status of the SIU for the two quarters of the reporting period.
- d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

3) **POTW's Compliance with Pretreatment Program Requirements**

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

- a. Date of latest PCA, PCI or PPE and report.
- b. Date of the Discharger's response.
- c. List of unresolved issues.
- d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at U.S. EPA, the State Water Resources Control Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX C

REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Table 2 on Page 5 of the Self-Monitoring Program (SMP).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Table 1 of the SMP. Any subsequent modifications of the requirements specified in Table 1 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Table 1 and the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required test methods listed in Table 3 on page 5 of the SMP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and effluent sampling locations shall be the same as those sites specified in the Self-Monitoring Program.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. A grab sample shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

- A. Sampling Procedures – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times. Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.
- B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.

- C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.
- D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- E. A tabulation of the test results shall be provided.
- F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

2. Sludge Monitoring

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

- A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or
- B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or
- C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Water Board approval.

- A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.
- B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- C. Test Results – Tabulate the test results and include the percent solids.
- D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality.

City of Petaluma
NPDES Permit NO. CA 0037810
Order No. R2-2005-0058

Attachment G

Fact Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 CLAY STREET, SUITE 1400
OAKLAND, CA 94612
(510) 622 - 2300 Fax: (510) 622 - 2460

FACT SHEET
for

NPDES PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR

CITY OF PETALUMA
SONOMA COUNTY

NPDES PERMIT NO. CA0037810
ORDER NO. R2-2005-0058

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments must be submitted to the Regional Water Board no later than 5:00 p.m. on September 27, 2005.
- Send comments to the Attention of Tong Yin.

Public Hearing

- The draft permit will be considered for adoption by the Regional Water Board at a public hearing during the Regional Water Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.
- This meeting will be held on: October 19, 2005, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Water Board staff member: Ms. Tong Yin, Phone: (510) 622-2418
email: tyin@waterboards.ca.gov

This Fact Sheet contains information regarding a reissuance of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for the City of Petaluma, Sonoma County, for discharging secondary-level treated municipal wastewater into the Petaluma River. The Fact Sheet describes the factual, legal, and methodological basis for the sections addressed in the proposed permit and provides supporting documentation to explain the rationale and assumptions used in deriving the effluent limitations.

I. INTRODUCTION

The Discharger applied for reissuance of waste discharge requirements and a permit to discharge wastewater to waters of the State and the United States under the NPDES program. The application and Report of Waste Discharge are dated March 22, 2002.

1. Facility Description

The Discharger owns the municipal wastewater treatment plant (the WWTP or the plant) located at 950 Hopper Street in Petaluma and oxidation pond system located at 4400 Lakeville Highway, Sonoma County, and presently contracts with Veolia Water Operation Services Inc. to operate the facility. The WWTP provides secondary level treatment for combined domestic, commercial and industrial wastewater collected in the City, the nearby community of Penngrove, and unincorporated areas in the vicinity of Petaluma. The Discharger's service area currently has a population of approximately 56,632 for the City (Year 2005 data) and 1510 for Penngrove for a total of approximately 58,142 residents.

The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this Discharger as a major discharger.

2. Treatment Process Description

The treatment facility is divided between the main plant located at 950 Hopper Street and the oxidation ponds located approximately 2.5 miles southeast of the plant, along Lakeville Highway. The treatment process consists of rag and grit removal, pre-aeration, primary sedimentation, biological treatment (either biofiltration or activated sludge), secondary clarification, oxidation lagoon treatment, followed by chlorination/dechlorination. The lagoon /oxidation pond treatment system consists of aeration and oxidation in a 162-acre pond system. Sludge is treated by anaerobic and aerobic digestion, dewatered by either centrifuge or belt filter press, and disposed of in a landfill.

3. Discharge Description

The WWTP has an average dry weather flow design capacity of 5.2 million gallons per day (mgd). The plant presently treats an average dry weather flow of 4.8 mgd (2000-2003) and an annual average flow of about 5.7 mgd (during January 2000 through March 2004). During the wet seasons of 2000 to 2004, the plant discharged an average effluent flow of 7.2 mgd to the Petaluma River; during the dry seasons of the same period, the plant reused an average flow of 4.2 mgd.

During the period from October 21 through April 30, treated wastewater is discharged into the Petaluma River. From May 1 through October 20, treated wastewater is reused for agricultural irrigation. In addition to agricultural irrigation, treated wastewater is applied to a golf course located at Frates Road and Ely Road on a year round basis. Discharges of treated wastewater to land are regulated by Water Reuse Requirements in Order No. 88-036, adopted by the Regional Water Board on March 16, 1988. The Discharger has filed Notice of Intent for coverage under the General Water Reuse Permit, Order No. 96-011. If coverage under the General Permit is attained, Order No. 88-036 is no longer effective.

4. Receiving Water Beneficial Uses

The beneficial uses of San Francisco Bay in the vicinity of the outfall, as identified in the Regional Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan) and based on known uses of the receiving water (Petaluma River) in the vicinity of the discharge, are:

- Cold Fresh Water habitat
- Marine Habitat*
- Fish Migration
- Navigation
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Noncontact Water Recreation
- Fish Spawning
- Warm Freshwater Habitat
- Wildlife Habitat

* The Discharger has stated its intent to petition the Regional Water Board to change the "Marine Habitat" beneficial use to "Estuarine" in the next Basin Plan review process.

5. Receiving Water Salinity

The receiving waters for the subject discharge are the waters of the Petaluma River, which is a tributary of San Pablo Bay. The Petaluma River is tidally-influenced and has salinities in between the two categories as described in the Basin Plan and CTR. Therefore, this Order's effluent limitations are based on the lower of the marine and fresh water WQOs/WQC. This basis is also consistent with the previous permit.

6. Receiving Water Hardness

Ambient hardness values are used to calculate freshwater WQOs/WQC that are hardness dependent. In determining the WQOs/WQC for this Order, Regional Water Board staff used a hardness value of 190 mg/L as CaCO_3 , which is the adjusted geometric mean (AGM) of 84 hardness values obtained from the Discharger's monitoring of the Petaluma River, during the period of January 1994 through December 2003, while there were discharges to the Petaluma River. The AGM represents the value that 30% of the data points fall below. The hardness data set was reduced (from 240 data points to 84 data points) to eliminate hardness values above 400 mg/L and to eliminate hardness values obtained when the receiving water salinity was above 1.0 ppt. Since salinity was not monitored for all sampling events, a linear regression analysis was performed on the available salinity and total dissolved solids (TDS) data. The equation was used to predict the missing salinity values associated with hardness monitoring data collected on specific dates. The data and calculation can be found in **Attachment 1** of this Fact Sheet. The following lists the procedure to calculate an AGM:

1. Calculate the logarithms of each hardness value.
2. Calculate the arithmetic mean of the logarithms.
3. Calculate the standard deviation (s) of the logarithms.
4. Calculate the standard error (SE) of the arithmetic mean:
$$SE = s/\sqrt{n}$$
5. Calculate $A = \text{arithmetic mean} - t_{0.7} \times SE$
where $t_{0.7}$ is the value of Student's t statistics for a one-sided probability of 0.7 with $n-1$ degrees of freedom, n -sample size. With a sample size of 84, $t_{0.7} = 0.526$.
6. Take the antilogarithm of A, antilog A is the AGM.

II. DESCRIPTION OF EFFLUENT

Table A below presents the quality of the discharge, as indicated in the Discharger's self-monitoring reports over the period of January 2000 through March 2004.

Table A. Summary of Effluent Data

<u>Parameter</u>	<u>Average</u>	<u>Range of Reported Values</u>	<u>Number of Samples</u>
pH, standard units	7.86	6.64 -9.21	1420
Total Coliform Bacteria, MPN/100 mL	<2 ^[1]	<2 - 1600	1236
BOD ₅ , mg/L	18.8	6.9 – 43.5	682
Percent Removal, BOD ₅	93.8	86.3 – 97.0	51
Chlorine, mg/L	--	(Discharger please provided data)	(Discharger please provided data)
TSS, mg/L	40.7	8.0 – 84.7	711
Percent Removal, TSS	86.2	77.4 – 93.0	51
Settleable Solids, ml/L	<0.1 ^[1]	<0.1 – 0.6	1417
Dissolved Oxygen, mg/L	4.5	0.7 – 11.4	1389
Oil and Grease, mg/L	<5 ^[1]	<2 – 8	71
Temperature (°C)	17.1	7.5 – 27.0	1417
Ammonia as Nitrogen, mg/L	8.2	1.6 -19.0	76
Acute Toxicity, Percent Survival	--	0 ^[2] - 100	33
Chronic Toxicity, TUc	--	1.00 – 2.0	20
Antimony, µg/L	0.33	0.3 – 0.5	8
Arsenic, µg/L	1.85 [3]	0.9 – 3.6	33
Beryllium, µg/L	All ND	<0.1 - <1.0	26
Cadmium, µg/L	0.08 [3]	0.03 - <0.2	33
Chromium VI, µg/L	0.89 [3]	0.4 – 3.0	33
Copper, µg/L	3.3 [3]	1.7 – 6.0	33
Lead, µg/L	0.63 [3]	0.247 – <2.0	33
Mercury, µg/L	0.0071	0.0005 – 0.021	30
Nickel, µg/L	4.05 [3]	2.7 – 6.8	33
Selenium, µg/L	0.7 [3]	0.6 – 2.0	33
Silver, µg/L	0.17 [3]	0.05 -0.5	33
Thallium, µg/L	0.08 [3]	0.06 – 0.2	6
Zinc, µg/L	20 [3]	10 - 40	33
Cyanide, µg/L	3.0 [3]	1.4 - 10	33

[1] Median value.

[2] The Discharger observed acute toxicity in early 2004, after the Discharger switched to the 5th edition with younger fish.

[3] Averages were calculated with the non-detected values being replaced with half detection limit.

III. GENERAL RATIONALE AND REGULATORY BASES

- the Federal *Water Pollution Control Act*, Sections 301 through 305, and 307, and amendments thereto, as applicable (the Clean Water Act – the CWA);
- the Regional Water Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan), and amendments thereto, as subsequently approved by the State Water Resources Control Board (the State Water Board), the Office of Administrative Law (OAL) and the U.S. EPA;
- the State Water Resource Control Board's (the State Water Board's) March 2, 2000 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the State Implementation Plan - the SIP), as subsequently approved by the OAL and the U.S. EPA;
- the U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule – the CTR);
- the U.S. EPA's National Toxics Rule as promulgated [Federal Register Volume 57, 22 December 1992, page 60848] and subsequently amended (the NTR);
- the U.S. EPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986], and subsequent amendments, (the U.S. EPA Gold Book);
- applicable Federal Regulations [40 CFR Parts 122 and 131];
- 40 CFR Part 131.36(b) and amended [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];
- the U.S. EPA's December 10, 1998 *National Recommended Water Quality Criteria* compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];
- the U.S. EPA's December 27, 2002 *Revision of National Recommended Water Quality Criteria* compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and
- guidance provided with State Water Board actions remanding permits to the Regional Water Board for further consideration.

IV. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed Order are discussed as follows:

1. Recent Facility Performance

Section 402(o) of the Clean Water Act (CWA) and 40 CFR § 122.44(l) require that water quality-based effluent limitations (**WQBELs**) in re-issued permits be at least as stringent as in the previous permit. The SIP specifies that interim effluent limitations, if required, must be based on current facility performance or on previous permit limitations whichever is more stringent (unless anti-backsliding requirements are met). In determining what constitutes "recent plant performance,"

best professional judgment (**BPJ**) was used. Effluent data collected from January 2000 through March 2004 for conventional and toxic pollutants are considered representative of recent plant performance.

2. Impaired Water Bodies on 303(d) List

On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 2002 303(d) list), prepared pursuant to provisions of Section 303(d) of the federal CWA requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing San Pablo Bay include diazinon, dieldrin, dioxin compounds, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. The San Pablo Bay is also listed as impaired by exotic species. Copper, which was previously identified as impairing San Pablo Bay, was not included as impairing pollutant in the 2002 303(d) list and has been placed on the new Monitoring List. The Petaluma River (tidal portion) has been listed as impaired by diazinon, nickel, pathogens, and nutrients.

The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated waste load allocations (WLAs). The SIP and U.S. EPA regulations also require that final concentration-based WQBELs be included for all pollutants having reasonable potential to cause or contribute to an exceedence of applicable water quality standards (having reasonable potential or RP). The SIP requires that where the discharger has demonstrated infeasibility to meet the final WQBELs, interim performance-based limitations (IPBLs) or previous permit limitations (whichever is more stringent) be established in the permit, together with a compliance schedule that shall remain in effect until final effluent limitations are adopted. The SIP also requires the inclusion of appropriate provisions for waste minimization and source control where interim limitations are established.

3. Basis for Prohibitions

- a. Discharge Prohibition A.1. (no discharge receiving less than 10:1 dilution or to dead-end sloughs): This prohibition is based on the Basin Plan and is the previous permit. The Basin Plan prohibits discharges not receiving a minimum 10:1 initial dilution or to dead-end sloughs (Chapter 4, Discharge Prohibition No. 1). The Regional Water Board has granted an exception to the discharge prohibition for discharges to Petaluma River as described in the findings of the Order.
- b. Discharge Prohibition A.2 & A.4 & A.6 (no bypass or overflow of untreated wastewaters, no discharge of anything other than storm water to storm drains, unless as authorized by this permit): This prohibition is based on the Basin Plan. The Basin Plan prohibits the discharge of partially treated and untreated wastes (Chapter 4, Discharge Prohibition No.15). This prohibition is based on general concepts contained in Sections 13260 through 13264 of the California Water Code that relate to the discharge of waste to State waters without filing for and being issued a permit. Under certain circumstances, as stated in 40 CFR 122.41 (m), the facilities may bypass waste streams to waters of the State in order to prevent loss of life, personal injury, or severe property damage, or if there were no feasible alternatives to the bypass and the Discharger submitted notices of the anticipated bypass to waters of the State.
- c. Discharge Prohibition A.3. (average dry weather flow not to exceed 5.2 mgd, may increase up to 6.7 mgd after the new WWTP is operational): This prohibition is based on the historic

reliable treatment capacity of the plant. Exceedance of the treatment plant's average dry weather flow design capacity may result in lowering the reliability of achieving compliance with water quality requirements, unless the Discharger demonstrates otherwise through an antidegradation study. This prohibition is based on 40 CFR 122.41(l). The Discharger is upgrading the aeration ponds, and is building a new WWTP. During the permit term, upon the Executive Officer's approval of an antidegradation analysis, the WWTP may get two flow capacity increases, from 5.2 mgd to 5.7 mgd upon the completion of the aeration capacity project, and from 5.7 mgd to 6.7 mgd upon the completion and operation of the new WWTP, respectively.

- e. Discharge Prohibition A.5. (no discharge to Petaluma River from May 1 through October 20): Discharge to the Petaluma River during the dry weather season is prohibited by the Basin Plan, Chapter 4, Discharge Prohibition No. 1. However, an exception may be authorized by the Executive Officer under certain emergency situations such as prolonged wet season that prohibits normal reclamation.

4. Basis for Effluent Limitations

a. Effluent Limitations B(1) (Conventional Pollutants)

Permit Limitation	Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
B(1)(a)	Biochemical Oxygen Demand (BOD ₅ , 20°C)	mg/L	30	45	--	--
B(1)(b)(i)	Total Suspended Solids[1]	mg/L	45	65	--	--
B(1)(c)	Oil & Grease	mg/L	10	--	20	--
B(1)(d)	Chlorine Residual [2]	mg/L	--	--	--	0.0

[1]After the new WWTP is operational, TSS effluent limitations for the discharges are specified as follows.

Permit Limitation	Constituent	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
B(1)(b)(ii)	Total Suspended Solids	mg/L	30	45	--	--

[2] Requirement defined as below the limit of detection in the latest officially approved edition of "Standard Methods for Examination of Water and Wastewater."

The effluent limitations B(1)(a), B(1)(b)(ii), and B(1)(c) are technology-based limitations. These limitations are based on the Basin Plan (Chapter 4, page 4-8, and Table 4-2, at page 4-69). B(1)(b)(i) are retained from the previous permit as the Discharger has had difficulty complying with B(1)(b)(ii). The alternate limitations (45 and 65 mg/l for monthly and weekly averages, respectively) were originally granted in 1985. The Federal Regulations specify that alternative limitations may only be applied if (1) the BOD and TSS effluent concentrations, consistently achievable through proper operation and maintenance of the treatment works, exceed the minimum level of the effluent quality set forth in 133.102(a) and 133.102(b); and, (2) waste stabilization ponds or trickling filters are the principal process used for secondary treatment. The Discharger's secondary treatment processes include the trickling filters, activated sludge unit, and oxidation ponds. The trickling filters and oxidation ponds, together, treat over 50% of the

wastewater. However, the BOD effluent quality is not compromised by the Discharger's ponds or the trickling filters. This Order maintains the alternate limitations provided that the Discharger maintains and manages the treatment facilities properly. After the new WWTP becomes operational, the Discharger shall comply with B(1)(b)(ii).

Effluent limitation B(1)(d): This effluent limitation was in the previous permit, and is from Chapter 4 of the Basin Plan. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flow, chlorine, and sodium bisulfite dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff may conclude that these false positives of chlorine residual exceedances are not violations of the permit limit.

b. Effluent Limitation B(2) (pH, minimum 6.5, maximum 8.5):

These effluent limitations are technology-based limit and are unchanged from the previous permit. These limitations are based on the Basin Plan (Chapter 4, Table 4-2), which are derived from federal requirements (40 CFR 133.102). These are previous permit effluent limitations and compliance has been demonstrated by existing plant performance. The Discharger may elect to use continuous on-line monitoring system(s) for measuring pH. In this case, 40 CFR 401.17 (pH Effluent Limitations under Continuous Monitoring), and BPJ are the basis for the compliance provisions for pH limitations. Excursions of the pH effluent limitations are permitted, provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes. For dry season discharges, since it is unlikely that the discharge lasts longer than a month, the condition for complying with pH limit under continuous monitoring is limited to (ii) above.

c. Effluent Limitation B.3 (BOD and TSS monthly average 85 percent removal):

These are technology-based limitations and existing permit effluent limitations based on Basin Plan requirements, derived from federal requirements (40 CFR 133.102; definition in 133.101). During the past 5 years, the Discharger has consistently met these removal efficiency limits.

d. Effluent Limitation B.4 (Total Coliform):

The total coliform limitations require that the moving median value for the MPN of total coliform bacteria in any five consecutive samples shall not exceed 23 MPN/100ml and any single sample shall not exceed 240 MPN/100mL, the daily maximum limitation is from Basin Plan, Table 4-2; the median limitation is allowed by Footnote (e), Table 4-2 of the Basin Plan. The Regional Water Board has granted an exception to the 2.2 median limitation in Table 4-2 of the Basin Plan, since the Discharger submitted a preliminary analysis of the total coliform in the effluent and Petaluma River both upstream and downstream of the discharge (see Attachment 7 of the Fact Sheet). The analysis shows that the effluent has total coliform levels that are in compliance with the water quality objectives for water contact recreation (as specified in Table 3-1 of Basin Plan), and are of much better quality than the ambient bacterial level. The purpose of these effluent limitations is to ensure adequate disinfection of the discharge in order to protect beneficial uses of the receiving waters. Therefore, the discharge does not compromise the beneficial uses of the receiving water, and as a result, an exception to the Basin Plan Table 4-2 total coliform effluent limitations has been granted to the discharge.

Effluent limitations based on WQOs for bacteriological parameters for receiving water beneficial uses are given in terms of parameters which serve as surrogates for pathogenic organisms. The traditional parameter in this regard is coliform bacteria, either as total coliform or as fecal coliform. The Regional Water Board can allow the Discharger to use alternate limitations of bacteriological quality if the Discharger can establish to the satisfaction of the Board that the use of the fecal coliform or enterococci limitations will not result in unacceptable adverse impacts on the beneficial uses of the receiving water.

e. Effluent Limitation B.5 (Whole Effluent Acute Toxicity):

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limitations are necessary to ensure that this objective is protected. The acute toxicity limit is based on the Basin Plan.

f. Effluent Limitation B.6 (Whole Effluent Chronic Toxicity):

The chronic toxicity limit is based on the Basin Plan. Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive test species identified by screening phase testing. The Discharger shall conduct routine monitoring with the species approved by the Executive Officer. At the time of this permit adoption, the approved species is *Americamysis bahia* (mysid), which is the most sensitive species identified during the chronic toxicity screening study conducted between December 2002 and February 2003, on *Macrocystis pyrifera* (giant kelp), *Americamysis bahia* (mysid), *Atherinops affinis* (topsmelt), and *Pimephales promelas* (fathead minnow).

g. Effluent Limitation B(i)(4) and B(ii)(4) (Toxic Substances):

1) Reasonable Potential Analysis (RPA)

Code of Federal Regulations Title 40, Part 122.44(d)(1)(i) (40 CFR 122.44(d)(1)(i)) specifies that permits must include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard" (have Reasonable Potential or RP). Thus, assessing whether a pollutant has RP is the fundamental step in determining whether or not a WQBEL is required. The following sections describe the RPA and the results of such an analysis for the pollutants identified in the Basin Plan and the CTR.

- i) *WQOs/WQC*: The RPA uses Basin Plan WQOs, including narrative toxicity objectives in the Basin Plan, and applicable WQC in the CTR/NTR, or site-specific objectives (SSOs) if available, after adjusting for site-specific hardness and translators, if applicable. The governing WQOs/WQC are shown in **Attachment 3** of this Fact Sheet.

- ii) *Methodology*: The RPA uses the methods and procedures prescribed in Section 1.3 of the SIP. Regional Water Board staff has analyzed the effluent and background data and the nature of facility operations to determine if the discharge shows reasonable potential with respect to the governing WQOs/WQC. **Attachment 3** of this Fact Sheet shows the step-wise process described in Section 1.3 of the SIP.
- iii) *Effluent and background data*: The RPA is based on effluent data collected by the Discharger from January 2000 through March 2004 for most priority pollutants. Ambient data collected in 2002 and 2003 on the Petaluma River near the Discharger's outfall were used in evaluating background water quality for this Order.
- iv) *RPA determination*: The RPA results are shown below in Table B and **Attachment 3** of this Fact Sheet. The pollutants that exhibit reasonable potential are copper, mercury, nickel, selenium, cyanide, TCDD TEQ, and bis(2-ethyhexyl)phthalate.

Table B. Summary of Reasonable Potential Results

# in CTR	Priority Pollutants	Governing WQO/WQC (µg/L)	MEC or Minimum MDL ¹ (µg/L)	Maximum Background or Minimum MDL ¹ (µg/L)	RPA Results ²
1	Antimony	4,300	0.5	1.1	No
2	Arsenic	36	3.6	29	No
3	Beryllium	No Criteria	0.1	0.06	Uo
4	Cadmium	1.9	0.2	0.03	No
5a	Chromium (III)	350	NA		Ud
5b	Chromium (VI)	11.43	3	2.8	No
6	Copper	3.7	6	14.7	Yes
7	Lead	7.2	0.6	0.83	No
8	Mercury	0.025	0.021	0.018	Yes
9	Nickel	8.3	6.8	24.5	Yes
10	Selenium	5.00	2	12	Yes
11	Silver	2.2	0.5	0.02	No
12	Thallium	6.3	0.2	0.2	No
13	Zinc	85.6	40	20	No
14	Cyanide	1.0	10	3	Yes
15	Asbestos	No Criteria	NA		Uo
16	2,3,7,8 TCDD	0.00000014	6.37×10^{-7}	6.37×10^{-7}	No
	TCDD TEQ	0.00000014	8.73×10^{-6}	5.27×10^{-8}	Yes
17	Acrolein	780	5	1	No
18	Acrylonitrile	0.66	2	1	No
19	Benzene	71	1.4	0.3	No
20	Bromoform	360	0.5	0.2	No
21	Carbon Tetrachloride	4.4	0.5	0.42	No
22	Chlorobenzene	21,000	0.5	0.3	No
23	Chlorodibromomethane	34	2.4	0.3	No
24	Chloroethane	No Criteria	0.5	0.34	Uo

# in CTR	Priority Pollutants	Governing WQO/WQC (µg/L)	MEC or Minimum MDL ¹ (µg/L)	Maximum Background or Minimum MDL ¹ (µg/L)	RPA Results ²
25	2-Chloroethylvinyl ether	No Criteria	6	0.32	Uo
26	Chloroform	No Criteria	8	0.3	Uo
27	Dichlorobromomethane	46	3.8	0.2	No
28	1,1-Dichloroethane	No Criteria	0.5	0.34	Uo
29	1,2-Dichloroethane	99	0.5	0.2	No
30	1,1-Dichloroethylene	3.2	0.5	0.49	No
31	1,2-Dichloropropane	39	0.5	0.2	No
32	1,3-Dichloropropylene	1,700	NA	0.2	No
33	Ethylbenzene	29,000	0.5	0.4	No
34	Methyl Bromide	4,000	85		No
35	Methyl Chloride	No Criteria	NA		Uo
36	Methylene Chloride	1,600	0.9	0.4	No
37	1,1,2,2-Tetrachloroethane	11	0.5	0.3	No
38	Tetrachloroethylene	8.85	2.4	0.44	No
39	Toluene	200,000	4.6	0.32	No
40	1,2-Trans-Dichloroethylene	140,000	NA	0.43	No
41	1,1,1-Trichloroethane	No Criteria	0.5	0.49	Uo
42	1,1,2-Trichloroethane	42	0.5	0.3	No
43	Trichloroethylene	81	0.5	0.3	No
44	Vinyl Chloride	525	0.5	0.47	No
45	2-Chlorophenol	400	5	0.6	No
46	2,4-Dichlorophenol	790	5	0.7	No
47	2,4-Dimethylphenol	2,300	2	0.9	No
48	2-Methyl- 4,6-Dinitrophenol	765	5	0.9	No
49	2,4-Dinitrophenol	14,000	5	0.6	No
50	2-Nitrophenol	No Criteria	5	0.7	Uo
51	4-Nitrophenol	No Criteria	5	0.6	Uo
52	3-Methyl 4-Chlorophenol	No Criteria		0.5	Uo
53	Pentachlorophenol	7.90	1	0.9	No
54	Phenol	4,600,000	1	0.4	No
55	2,4,6-Trichlorophenol	6.50	5	0.6	No
56	Acenaphthene	2,700	0.3	0.17	No
57	Acenaphthylene	No Criteria	0.2	0.03	Uo
58	Anthracene	110,000	0.3	0.16	No
59	Benzidine	0.00054	5	1	No
60	Benzo(a)Anthracene	0.049	0.3	0.12	No
61	Benzo(a)Pyrene	0.049	0.3	0.09	No
62	Benzo(b)Fluoranthene	0.049	0.3	0.11	No
63	Benzo(ghi)Perylene	No Criteria	0.1	0.06	Uo
64	Benzo(k)Fluoranthene	0.049	0.3	0.16	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	5	0.9	Uo
66	Bis(2-Chloroethyl)Ether	1.40	1	0.7	No
67	Bis(2-Chloroisopropyl)Ether	170,000	2	0.6	No
68	Bis(2-Ethylhexyl)Phthalate	5.90	12	0.8	Yes

# in CTR	Priority Pollutants	Governing WQO/WQC (µg/L)	MEC or Minimum MDL ¹ (µg/L)	Maximum Background or Minimum MDL ¹ (µg/L)	RPA Results ²
69	4-Bromophenyl Phenyl Ether	No Criteria	5	0.4	Uo
70	Butylbenzyl Phthalate	5,200		0.8	No
71	2-Chloronaphthalene	4,300	5	0.5	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	5	0.5	Uo
73	Chrysene	0.049	0.3	0.14	No
74	Dibenzo(a,h)Anthracene	0.049	0.1	0.04	No
75	1,2-Dichlorobenzene	17,000	0.5	0.2	No
76	1,3-Dichlorobenzene	2,600	0.5	0.3	No
77	1,4-Dichlorobenzene	2,600	0.5	0.3	No
78	3,3 Dichlorobenzidine	0.077	5	0.3	No
79	Diethyl Phthalate	120,000	2	0.7	No
80	Dimethyl Phthalate	2,900,000	2	0.7	No
81	Di-n-Butyl Phthalate	12,000	5	1	No
82	2,4-Dinitrotoluene	9.10	5	0.6	No
83	2,6-Dinitrotoluene	No Criteria	5	0.6	Uo
84	Di-n-Octyl Phthalate	No Criteria	5	0.9	Uo
85	1,2-Diphenylhydrazine	0.54	1	0.6	No
86	Fluoranthene	370	0.05	0.03	No
87	Fluorene	14,000	0.1	0.02	No
88	Hexachlorobenzene	0.00077	1	0.4	No
89	Hexachlorobutadiene	50	1	0.7	No
90	Hexachlorocyclopentadiene	17,000	5	0.4	No
91	Hexachloroethane	8.90	1	0.6	No
92	Indeno(1,2,3-cd)Pyrene	0.049	0.05	0.04	No
93	Isophorone	600	1	0.8	No
94	Naphthalene	No Criteria	0.2	0.05	Uo
95	Nitrobenzene	1,900	1	0.7	No
96	N-Nitrosodimethylamine	8.10	5	0.6	No
97	N-Nitrosodi-n-Propylamine	1.40	5	0.8	No
98	N-Nitrosodiphenylamine	16	1	0.7	No
99	Phenanthrene	No Criteria	0.05	0.03	Uo
100	Pyrene	11,000	0.05	0.03	No
101	1,2,4-Trichlorobenzene	No Criteria	5	0.6	Uo
102	Aldrin	0.00014	0.005	0.003	No
103	alpha-BHC	0.013	0.01	0.003	No
104	beta-BHC	0.046	0.02	0.004	No
105	gamma-BHC	0.063	0.01	0.003	No
106	delta-BHC	No Criteria	0.005	0.002	Uo
107	Chlordane	0.00059	0.02	0.005	No
108	4,4'-DDT	0.00059	0.01	0.003	No
109	4,4'-DDE (linked to DDT)	0.00059	0.01	0.002	No
110	4,4'-DDD	0.00084	0.01	0.002	No
111	Dieldrin	0.00014	0.01	0.002	No
112	alpha-Endosulfan	0.0087	0.01	0.002	No

# in CTR	Priority Pollutants	Governing WQO/WQC (µg/L)	MEC or Minimum MDL ¹ (µg/L)	Maximum Background or Minimum MDL ¹ (µg/L)	RPA Results ²
113	beta-Endosulfan	0.0087	0.01	0.002	No
114	Endosulfan Sulfate	240	0.01	0.002	No
115	Endrin	0.0023	0.01	0.002	No
116	Endrin Aldehyde	0.81	0.01	0.002	No
117	Heptachlor	0.00021	0.01	0.003	No
118	Heptachlor Epoxide	0.00011	0.01	0.003	No
119-125	PCBs sum (2)	0.00017	0.1	0.03	No
126	Toxaphene	0.00020	0.5	0.4	No
	Tributyltin	0.0074	0.002	0.00128	No
	Total PAHs	15	0.3	0.17	No

[1] Values for MEC or maximum background in bold are the actual detected concentrations, otherwise the values shown are the minimum detection levels.

NA = Not Available (there is no monitoring data or WQO/WQC for this constituent).

[2] RP = Yes, if either MEC or background > WQO/WQC.

RP = No, if both MEC or background < WQO/WQC or all effluent concentrations non-detect and background < WQO/WQC or no background available.

RP = Uo (undetermined if no objective promulgated).

RP = Ud (undetermined due to lack of effluent data).

v) *Pollutants with no reasonable potential*: WQBELs are not included in the Order for constituents that do not have reasonable potential to cause or contribute to exceedance of applicable WQOs/WQC. However, monitoring for those pollutants is still required. If concentrations of these constituents are found to increase significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water. If the Discharger has fulfilled the sampling requirements according to its approved sampling plan submitted per the August 6, 2001 Letter, the Discharger shall perform a minimum of one sampling event of all 126 priority pollutants during the life of the permit, and submit the results at least 180 days prior to permit expiration (with the permit renewal application).

vi) *Permit reopener*: The permit includes a reopener provision to allow numeric effluent limitations to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of a WQO/WQC. This determination, based on monitoring results, will be made by the Regional Water Board.

2) Applicable WQOs/WQC for WQBEL Calculation

Toxic substances are regulated by WQBELs derived from the Basin Plan, Tables 3-3 and 3-4, the CTR, the NTR, and/or best professional judgment (BPJ). WQBELs in this Order are revised and updated from the limitations in the previous Order, and their presence in this Order is based on the evaluation of the Discharger's data as described below under the Reasonable Potential Analysis. Numeric WQBELs are required for all constituents that have a reasonable potential to cause or contribute to an excursion above any State water quality standard. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limitations will

be infeasible to meet and provides justification for a compliance schedule, then interim limitations are established, with a compliance schedule to achieve the final limits. The WQOs/WQC used for each pollutant with Reasonable Potential is indicated in Table C below as well as in **Attachment 3** of the Fact Sheet.

Table C. Water Quality Objectives/Criteria for Pollutants with Reasonable Potential

Pollutant	Chronic WQO/WQC (µg/L)	Acute WQO/WQC (µg/L)	Human Health WQC (µg/L)	Basis of Lowest WQO /WQC Used in RP[1]
Copper	3.7	5.8	--	CTR, T=0.83
Mercury	0.025	2.1	0.051	BP, sw
Nickel	8.3	75	4,600	BP, sw
Selenium	5.0	20	NA	NTR, sw/fw
Cyanide	1	1	220,000	NTR, sw
TCDD TEQ	--	--	1.4×10^{-8}	BP, narrative
Bis(2-ethylhexyl) phthalate	--	--	5.9	CTR, hh

[1] BP = Basin Plan, sw = salt water, fw = fresh water, NTR = National Toxics Rule, hh = human health

3) Interim Limitations

Interim effluent limitations were derived for those constituents (copper and cyanide) for which the Discharger has shown infeasibility of complying with the respective final limitations and has demonstrated that compliance schedules are justified based on the Discharger's source control and pollution minimization efforts in the past and continued efforts in the present and future. The interim effluent concentration limitations are based on statistical analysis of the effluent data for both pollutants. The interim limitations are discussed in more detail below.

4) Feasibility Evaluation and Final WQBELs

The Discharger submitted an infeasibility to comply report on August 22, 2005 for copper and cyanide. Regional Water Board performed statistical analysis on copper and cyanide self-monitoring data from January 2000 through March 2004 to compare the mean, 95th percentile, and 99th percentile with the long-term average (LTA), AMEL, and MDEL to confirm if it is feasible for the Discharger to comply with WQBELs. If any of the LTA, AMEL, and MDEL exceeds the mean, 95th percentile, and 99th percentile, the infeasibility for the Discharger to comply with WQBELs is confirmed statistically. Table D below shows these comparisons in µg/L:

Table D: Summary of Feasibility Analysis (unit: µg/L)

Constituent	Mean / LTA	95 th / AMEL	99 th / MDEL	Feasible to Comply
Copper	3.3>2.6	5.2>3.3	6.4>5.3	No
Cyanide	3.1>0.3	7.1>0.5	10.8>1.0	No

In addition, the Discharger asserted that it is infeasible to achieve immediate compliance with mercury effluent limit contained in the previous Order. Regional Water Board staff compared the MEC with the effluent limitation, and concurred with this assertion. The new WQBELs were calculated using the Basin Plan mercury objectives and SIP procedures.

For bis(2-ethylhexyl)phthalate (BEHP), there are only two detected values; therefore, it is not feasible to perform a meaningful statistical analysis to determine compliance. The MEC is higher than the AMEL, therefore, it is not feasible for the Discharger to achieve immediate compliance. Due to limited data, this Order does not establish an interim limitation for BEHP. This Order requires the Discharger to continue monitoring BEHP and develop pollution prevention activities to reduce concentrations in the effluent. The permit will be reopened, as appropriate, to include BEHP limitations when additional data become available. Final WQBELs for BEHP may be considered by the Regional Water Board in the next permit reissuance if the effluent continues to show reasonable potential.

For dioxin compounds, there are only three effluent data during 2002 through 2004. Due to the limited effluent data, there is uncertainty in determining compliance or establishing an interim limitation. In addition, the MLs developed for 2,3,7,8-TCDD and 16 congeners (referred to as dioxins) by the Regional Water Board and BACWA range from 5 pg/L to 50 pg/L, which are higher than the WQBELs. As a result, this permit does not contain an interim limitation for dioxin. The final limitations for dioxins will be based on the WLA assigned to the Discharger in the TMDL.

Table E below summarizes the calculated WQBELs, and the feasibility to comply analysis for all pollutants with effluent limitations. The WQBELs calculation is attached as **Attachment 4** of this Fact Sheet.

Table E. Final WQBELs and Feasibility to Comply (Unit: µg/L)

Pollutant	MDEL µg/L	AMEL µg/L	Feasible to Comply?	Interim Limit
Copper	5.2	3.3	No	7.9
Mercury	0.040	0.021	Yes	--
Nickel	--	7.1	Yes	--
Selenium	8.2	4.1	Yes	--
Cyanide	1.0	0.5	No	14
TCDD TEQ	2.8×10^{-8}	1.4×10^{-8}	No	--
Bis(2-Ethylhexyl)Phthalate	11.8	5.9	No	--

5) Interim Limitations and Compliance Schedules

This Order establishes a compliance schedule until May 17, 2010 for copper and April 27, 2010 for cyanide. The final WQBELs for copper and cyanide shall become effective on May 18, 2010 and April 28, 2010, respectively, or until the Regional Water Board adopts the SSOs for copper and cyanide.

During the compliance schedules, interim limitations are included based on current treatment facility performance or on previous permit limitations, whichever is more stringent, unless antibacksliding and antidegradation requirements are satisfied, to maintain existing water quality. **Attachment 5** details the general basis for final compliance dates. The Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met.

- i). **Copper – Further Discussion and Rationale for Interim Effluent Limitation:** Interim effluent limitations are required for copper since the Discharger has demonstrated and the Regional Water Board verified that the final effluent limitations calculated according to the SIP will be infeasible to meet. The SIP requires the interim numeric effluent limitation for the pollutant be based on either current treatment facility performance, or on the previous Order's limitation, whichever is more stringent. Regional Water Board staff calculated an interim performance-based limitation (IPBL) of 7.9 µg/L (3 standard deviations above the mean), which is more less stringent than the previous permit's effluent limitation of 4.9 µg/L. However, the Discharger has asserted that it is infeasible to achieve immediate compliance with the previous permit effluent limit. The Discharger asserts that its oxidation pond system provides metal removal usually equivalent to a tertiary-level treatment plant. The Discharger's copper effluent monitoring concentrations have been consistently low in the past (MEC is 6 µg/L); but there were samples exceeding the previous limit of 4.9 µg/L. An interim limit based on recent performance is necessary; therefore, 7.9 µg/L is established as the interim limitation, expressed as a daily maximum. Antibacksliding does not apply to interim effluent limits, so long as there is compliance with antidegradation. The interim limit in this permit is in compliance with antidegradation, because it is based on current plant performance and will limit the discharge to existing treatment level. Even if antidegradation applies to interim limits, the interim limit in this permit is exempt pursuant to CWA 402(o)(2)(c). Therefore, 7.9 µg/L is established in this Order as the interim limitation, and will remain in effect until May 17, 2010, or until the Regional Water Board amends the limitation based on SSO or additional data.
- ii). **Cyanide – Further Discussion and Rationale for Interim Effluent Limitation:** Interim effluent limitations are required for cyanide since the Discharger has demonstrated and the Regional Water Board verified that the final effluent limitations calculated according to the SIP will be infeasible to meet. The SIP requires the interim numeric effluent limitation for the pollutant be based on either current treatment facility performance, or on the previous Order's limitation, whichever is more stringent. Regional Water Board staff calculated an interim performance-based limitation (IPBL) of 16.5 µg/L (3 standard deviations above the mean), which is less stringent than the previous permit interim limit of 14 µg/L. Therefore, 14 µg/L is retained in this Order as the interim limitation, and shall remain in effect until April 27, 2010, or until the Regional Water Board amends the limitation based on addition information or an SSO.

6) Attainability of Interim Performance-Based Limitations

i). Copper

During the period of January 2000 through March 2004, the Discharger's effluent concentrations for copper ranged from <2 µg/L to 6 µg/L (33 samples). All 33 samples

are below the interim limitation of 7.9 µg/L. It is therefore expected that the facility can comply with the interim limitation for copper.

ii). Cyanide

During the period of January 2000 through March 2004, the Discharger's effluent concentrations ranged from <3 µg/L to 10 µg/L (33 samples). All 33 samples are below the interim limitation of 14 µg/L. It is therefore expected that the facility can comply with the interim limitation for cyanide.

7) Mercury Interim Mass Emission Limitation/Mass Trigger

This Order includes an interim mercury mass-based effluent limitation of **0.60** kilograms per year (kg/yr) and a mass trigger of **0.0051** kg/month. This mass-based effluent limitation is intended to maintain the Discharger at current loadings while encouraging recycling and providing a buffer for growth. The mass trigger is recalculated using the ultra-clean data collected from January 2000 through March 2004 as it better reflects the plant's performance. The recalculated mass trigger is a reflection of better mercury effluent data (sampling and analytical techniques have improved) (See **Attachment 6** for the mercury trigger calculation). The mass limit will maintain current loadings until a TMDL is established for San Pablo Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL. If the mass trigger is exceeded, then the actions specified in Provision F.8 are initiated.

The inclusion of interim performance-based mass limits for bioaccumulative pollutants is consistent with the guidance described in section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass loads of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

Waterkeeper Appeal on Previous Order's Mercury Mass Limit/Trigger. The San Francisco Baykeeper (now known as the San Francisco Water Keeper) petitioned to the State Water Board the Discharger's NPDES permit, Order No. 98-076, in August 1998. In November 1999, the State Water Board dismissed the Baykeeper's appeal. In December 1999, Baykeeper filed a lawsuit against the Regional and State Water Boards in Sacramento County Superior Court. After a change of venue request by the plaintiff and the real parties in interest, the case was transferred to the Sonoma County Superior Court. In early 2002, the Sonoma Court ruled that the Regional Water Board appropriately set the mass limit/trigger for mercury while complying with antidegradation requirements. In May 2002, Baykeeper filed an appeal of the Sonoma Court ruling. This case was heard before the State Appellate Court in April 2003. In May 2003, the State Appellate Court upheld the Sonoma Court's ruling.

Antidegradation. In an unpublished decision, the Court of Appeal, in its ruling, concluded that the interim limits for mercury in Order No. 98-076 do not violate the antidegradation policy and that substantial evidence supports the superior court's decision, as illustrated below. The appeal decision is cited as the San Francisco Baykeeper, the California State Water Resources Control Board et al., Court of Appeal, filed on May 28, 2003, case No. A 098908.

The Sonoma County Superior Court concluded that the antidegradation policy for Tier 1 waters (which the Discharger's receiving water is categorized) does not necessarily prohibit an increase in the discharge of mercury. The court further concluded that the Regional Water Board's decision to include trigger level that approximates the actual mass discharged to water as well as mass limitation that rewards reuse was a policy choice the Regional Water Board was authorized to make. The Appellate court upheld the Superior Court's decision.

The Regional Water Board included a mass limit and trigger level for mercury in the permit to maintain ambient water quality. The combination of limit and trigger would protect the receiving water and would not cause further degradation of the water's beneficial uses. The Regional Water Board based the mercury mass limit on plant performance, but because the plant has substantial reuse programs, the mass limit is higher than the actual mass of mercury discharged to water. "[T]he way in which the mass load was calculated gives the discharger who reclaims more allowance or relative allocation... than the discharger who does not reclaim. The incentive is meant to increase reclamation [in the South Bay]". The Regional Water Board reasoned that rigidly holding dischargers to their current levels of performance would result in higher limits for POTWs that make little effort to reuse or otherwise reduce their polluted discharge, while POTWs that aggressively work to reduce their environmental impact would find themselves bound by increasingly more stringent limits. Mass trigger levels in the permit require the Discharger when loading exceeds the trigger to take certain specified actions to determine the cause of the higher load and to bring mercury mass back below the trigger.

8) Comparison to Previous Permit Limitations

The effluent limitations for TSS, oil and grease, pH, and chlorine residual have been retained from the previous Order. Settleable solids effluent limitations are no longer required. The interim effluent limitation for cyanide is unchanged from the previous Order. Copper and mercury have higher effluent limits, and the relaxation is in compliance with antibacksliding and antidegradation requirements. Effluent limitations for cadmium, chromium (VI), lead, lindane, and PAHs were removed from this Order as there is no reasonable potential for these pollutants. The effluent limitations for acute and chronic toxicity are unchanged from the previous Order.

7. Basis for Pond Management Requirements

These requirements are from the previous permit and are based on BPJ. The triggers are specified for odor control. If the triggers are exceeded or if there is an odor nuisance, the facility shall identify and address the issue.

8. Basis for Receiving Water Limitations

- a. Receiving Water Limitations D.1 and D.2. These limitations are in the existing permit and are based on water quality objectives for physical, chemical, and biological characteristics from Chapter III of the Basin Plan.
- b. Receiving Water Limitation D.3. This limitation is in the existing permit, requires compliance with Federal and State law, and is self-explanatory.

- c. Receiving Water Limitation D.4. This limitation is based on storm water regulations intended to protect beneficial uses of receiving waters from storm water pollutants.

9. Basis for Sludge Management Practices

Sludge Requirements E.1 through E.10. These requirements come from the Basin Plan (Chapter IV) and 40 CFR 257 and 503.

10. Basis for Self-Monitoring Requirements

Part A of the monitoring program is a standard requirement in almost all NPDES permits issued by the Regional Water Board. Most of the requirements also existing requirements for the Discharger. Part A contains definitions, specifies general sampling and analytical protocols, and specifies reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board policy. Part B of the monitoring program is specific for the Discharger. It defines the stations, constituents, and frequency of monitoring, and additional reporting requirements. Constituents required to be monitored include all parameters for which effluent limitations are specified. This is to allow determination of compliance with permit limitations in accordance with 40 CFR 122.44(i).

The SMP Part B includes monitoring at the outfall for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity. The sampling requirement for conventional and non-conventional pollutants has retained from the previous permit. Monthly acute bioassay is required to determine compliance with effluent limitations: This is the same as in the previous permit. Quarterly chronic toxicity test is required to determine compliance with the effluent limitations. For copper, mercury, nickel, selenium, and cyanide, the Discharger will perform monthly monitoring to demonstrate compliance with effluent limitations. Moreover, the Discharger shall collect annual samples for bis(2-ethylhexyl)phthalate and all the 2,3,7,8-TCDD congeners using the minimum detection limit that can be achieved. In lieu of near field discharge specific ambient monitoring, it is generally acceptable that the Discharger participate in collaborative receiving water monitoring with other dischargers under the provisions of the Regional Water Board's August 6, 2001 Letter and the RMP. During the permit life, the Discharger shall perform a minimum one sampling event of the 126 priority pollutants, and submit the results with permit renewal application, at least 180 days prior to permit expiration.

12. Basis for Provisions

- a. Provision F.1. (Permit Compliance and Rescission of Previous Permit): Time of compliance is based on 40 CFR 122. The basis of this Order superceding and rescinding the previous permit is based on 40 CFR 122.46.
- b. Provision F.2 (Effluent Characterization Study): This provision is based on the Basin Plan and the SIP.
- c. Provision F.3 (Receiving Water Study): This provision is based on the Basin Plan and the SIP.
- d. Provision F.4 (Cyanide Compliance Schedule and Site-Specific Objective (SSO) Study). This provision, based on BPJ, requires the Discharger to characterize background ambient cyanide concentrations and to participate in an on-going group effort to develop an SSO for cyanide.

- e. Provision F.5 (Regional Copper Study and Schedule): This provision, based on BPJ, requires the Discharger to continue its participation in the regional discharger-funded effort to develop site-specific saltwater aquatic life-based WQOs for copper in San Francisco Bay north of the Dumbarton Bridge.
- f. Provision F.6 (Pollutant Prevention and Minimization Program): This provision is based on the Basin Plan, pages 4-25 – 4-28, and the SIP, Section 2.1.
- g. Provision F.7 (Disinfection Effectiveness Study): This provision is based on BPJ. During the period from January 2000 through April 2004, the Discharger has had over 40 total coliform limitation exceedances. The Discharger is required by this provision, to conduct a disinfection study, which can be jointly conducted with Provision F.13 (alternate bacterial limitation study), to investigate measures to prevent bacterial limitation violations as well as the chlorine residual violations.
- h. Provision F.8 (Mercury Mass Loading Reduction): This provision will help to ensure no increases in mercury mass loadings until a TMDL and WLA are established. The Regional Water Board's determination of the need to maintain mass loadings at current levels for this bioaccumulative pollutant are based on Section 2.1.1 of the SIP.
- i. Provision F.9 (Whole Effluent Acute Toxicity): This provision establishes conditions by which compliance with permit effluent limitations for acute toxicity will be demonstrated. Conditions include the use of 96-hour flow-through bioassays, the use of fathead minnows and rainbow trout as the test species, and the use of approved test methods. These conditions are based on the effluent limitations for acute toxicity given in the Basin Plan, Chapter 4, and BPJ.
- j. Provision F.10. (Whole Effluent Chronic Toxicity): This provision establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). These conditions apply to the discharges to the Petaluma River and the numerical values for chronic toxicity evaluation. This provision also requires the Discharger to conduct screening phase monitoring when there is significant treatment process or facility change, or for permit reissuance, and implement toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge. The screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for future compliance monitoring. The conditions in the permit for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent limitations for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and State Water Board Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.
- k. Provision F.11 (Sanitary Sewer Management Plan): This provision requires the Discharger to actively participate in the BACWA and the Regional Water Board collaborative effort to address Sanitary Sewer Overflows. The effort is consistent with Regional Water Board Resolution No. R2-2003-0095, and Executive Officer's letters, dated November 15, 2004 and July 7, 2005, respectively.
- l. Provision F.12 (Optional Mass Offset): This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to the Petaluma River/San Pablo Bay.

- m. Provision F.13 (Optional Receiving Water Beneficial Use and Alternative Bacteriological Limitations Study): This provision allows the Discharger, at its option, to conduct a bacteriological assessment study. The study will evaluate impacts of the Discharger's effluent on the receiving waters (including worst case conditions). The Basin Plan allows alternate bacteria limitations, e.g., fecal coliform, enterococci, or E. Coli, provided that the Discharger conclusively demonstrates "through a program approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving waters". If the study demonstrates that the exceedances of the total coliform limitations are solely due to the study, and that there is compliance in the receiving water with the bacteriological objectives specified in the Basin Plan, the Regional Water Board may consider establishing alternate bacteria limitations.
- n. Provision F.14 (Optional Copper Translator Study and Schedule): The Discharger has difficulty complying with the copper WQBELs. Without site-specific data, the CTR default translator will be used. This provision is retained from the previous Order. The Discharger has collected field data for translator development during a previous study, but the study was insufficient.
- o. Provision F.15 (Status Reports on New or Upgraded Facility): This provision is based on BPJ and is retained from the previous Order. These reports are intended to keep the Regional Water Board informed as to progress towards the construction of the new WWTP.
- p. Provision F.16 (Permitted Treatment Plant Flows): This Provision is based on 40 CFR 122.41(l) (Reporting requirements).
- q. Provision F.17 (Storm Water Pollution Prevention Plan (SWPPP)): This provision is retained from the previous Order. This provision requires ongoing implementation of the Storm Water Pollution Prevention Plan, to ensure compliance with Federal storm water pollution controls.
- r. Provision F. 18 (Pretreatment Program): This provision requires the Discharger to implement and enforce its approved pretreatment program in accordance with Federal pretreatment regulations (40 CFR Part 403).
- s. Provision F. 19 (Wastewater Facilities, Review and Evaluation, Status Reports): This provision is based on the previous Order and the Basin Plan.
- t. Provision F.20 (Operations and Maintenance Manual, Review and Status Reports) and F.21 (Contingency Plan, Review and Status Report): These provisions are based on the Basin Plan, the requirements of 40 CFR 122, and the previous permit.
- u. Provision F.22 (303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review): Consistent with the SIP, the Discharger shall participate in the development of region-wide TMDL or SSO studies. By January 31 of each year, the Discharger shall submit an update to the Regional Water Board to document progress made on source control and pollutant minimization measures and development of TMDL or SSO. Regional Water Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.
- v. Provision F.23 (New Water Quality Objectives): This provision allows future modification of the permit and permit effluent limitations as necessary in response to updated WQOs that may be established in the future. This provision is based on 40 CFR 123.

- w. **Provision F.24 (Self-Monitoring Program):** The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.63. The SMP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board's policies. The SMP also contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.
- x. **Provision F.25 (Standard Provisions and Reporting Requirements):** The purpose of this provision is to require compliance with the standard provisions and reporting requirements given in this Regional Water Board's document titled Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (the Standard Provisions), or any amendments thereafter. That document is incorporated in the permit as an attachment to it. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the permit specifications shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.
- y. **Provision F.26 (Change in Control or Ownership):** This provision is based on 40 CFR 122.61.
- z. **Provision F.27 (Permit Reopener):** This provision is based on 40 CFR 123.
- aa. **Provision F.28 (NPDES Permit):** This provision is based on 40 CFR 123.
- bb. **Provisions F.29 (Order Expiration and Reapplication):** This provision is based on 40 CFR 122.46(a).

V. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Regional Water Board public hearing.

VI. ATTACHMENTS

- Attachment 1:** Representative Ambient Hardness Value Calculation
- Attachment 2:** Effluent Data (Priority Inorganic Pollutants)
- Attachment 3:** RPA Results for Priority Pollutants
- Attachment 4:** Calculation of Final WQBELs
- Attachment 5:** General Basis for Final Compliance Dates
- Attachment 6:** Mercury Mass Trigger Calculation
- Attachment 7:** Total Coliform Conditions in the Petaluma River

Attachment 1

Representative Ambient Hardness Value Calculation

Fact Sheet Attachment 1

City of Petaluma
Ambient Hardness Calculation

Ambient Hardness Calculation							
No.	Date	Station	Hardness	Ln (hardness)	Salinity (measured)	TDS	Predicted Salinity using TDS
1	3/1/1994	C1	300	5.703782475		899	0.6
2	1/17/1995	C1	180	5.192956851		461	0.2
3	2/7/1995	C1	200	5.298317367		674	0.4
4	3/7/1995	C1	300	5.703782475		909	0.7
5	4/4/1995	C1	240	5.480638923		797	0.6
6	2/12/1996	C1	220	5.393627546		568	0.3
7	3/5/1996	C1	180	5.192956851		553	0.3
8	4/2/1996	C1	200	5.298317367		294	0.1
9	1/6/1997	C1	180	5.192956851		577	0.3
10	2/4/1997	C1	360	5.886104031		874	0.6
11	2/9/1998	C1	110	4.700480366		213	0.0
12	3/9/1998	C1	300	5.703782475		955	0.7
13	4/8/1998	C1	200	5.298317367	0.8	730	0.5
14	2/10/1999	C1	80	4.382026635		188	0.0
15	3/15/1999	C1	228	5.429345629		857	0.6
16	Apr-99	C1	138	4.927253685		373	0.1
17	2/16/2000	C1	144	4.9698133	0	593	0.4
18	3/15/2000	C1	192	5.257495372	0.5	758	0.5
19	3/6/2001	C1	200	5.298317367	0.8	962	0.7
20	Jan-02	C1	161	5.081404365	0.5	680	0.4
21	Jan-03	C1	283	5.645446898	0.8	1200	0.9
22	3/1/1994	C2A	260	5.560681631		943	0.7
23	1/17/1995	C2A	160	5.075173815		470	0.2
24	2/7/1995	C2A	204	5.318119994		668	0.4
25	3/7/1995	C2A	300	5.703782475		871	0.6
26	4/4/1995	C2A	240	5.480638923		834	0.6
27	2/12/1996	C2A	240	5.480638923		583	0.3
28	3/5/1996	C2A	160	5.075173815		541	0.3
29	4/2/1996	C2A	140	4.941642423		291	0.1
30	1/6/1997	C2A	200	5.298317367		598	0.4
31	2/4/1997	C2A	280	5.634789603		907	0.7
32	2/9/1998	C2A	112	4.718498871		204	0.0
33	3/9/1998	C2A	280	5.634789603		952	0.7
34	4/8/1998	C2A	200	5.298317367	0.8	722	0.5
35	2/10/1999	C2A	80.4	4.387014176		196	0.0
36	3/15/1999	C2A	216	5.375278408		803	0.6
37	Apr-99	C2A	143	4.96284463		378	0.2
38	2/16/2000	C2A	134	4.8978398	0	577	0.3
39	3/15/2000	C2A	186	5.225746674	0.5	773	0.5
40	3/6/2001	C2A	196	5.278114659	0.8	917	0.7
41	Jan-02	C2A	158	5.062595033	0.5	660	0.4
42	Jan-03	C2A	277	5.624017506	0.8	1200	0.9
43	3/1/1994	C2B	280	5.634789603		981	0.7
44	1/17/1995	C2B	160	5.075173815		463	0.2
45	2/7/1995	C2B	206	5.327876169		673	0.4
46	3/7/1995	C2B	280	5.634789603		904	0.7
47	4/4/1995	C2B	280	5.634789603		847	0.6
48	2/12/1996	C2B	240	5.480638923		599	0.4
49	3/5/1996	C2B	180	5.192956851		559	0.3
50	4/2/1996	C2B	160	5.075173815		304	0.1
51	1/6/1997	C2B	220	5.393627546		608	0.4
52	2/4/1997	C2B	280	5.634789603		864	0.6
53	2/9/1998	C2B	112	4.718498871		209	0.0
54	3/9/1998	C2B	280	5.634789603		900	0.6
55	4/8/1998	C2B	204	5.318119994	1	735	0.5
56	2/10/1999	C2B	86	4.454347296		188	0.0
57	3/15/1999	C2B	220	5.393627546		837	0.6
58	Apr-99	C2B	174	5.159055299		393	0.2
59	2/16/2000	C2B	136	4.912654886	0	590	0.4
60	3/15/2000	C2B	194	5.267858159	0.5	783	0.5
61	3/6/2001	C2B	198	5.288267031	0.8	955	0.7
62	Jan-02	C2B	156	5.049856007	0.5	690	0.4
63	Jan-03	C2B	284	5.648974238	0.8	1300	1.0
64	3/1/1994	CR	280	5.634789603		1062	0.8

Fact Sheet Attachment 1

City of Petaluma
Ambient Hardness Calculation

Ambient Hardness Calculation							
65	1/17/1995	CR	180	5.192956851		504	0.3
66	2/7/1995	CR	206	5.327876169		682	0.4
67	3/7/1995	CR	260	5.560681631		921	0.7
68	4/4/1995	CR	260	5.560681631		848	0.6
69	2/12/1996	CR	220	5.393627546		623	0.4
70	3/5/1996	CR	160	5.075173815		555	0.3
71	4/2/1996	CR	160	5.075173815		305	0.1
72	1/6/1997	CR	220	5.393627546		588	0.4
73	2/4/1997	CR	260	5.560681631		892	0.6
74	2/9/1998	CR	110	4.700480366		216	0.0
75	3/9/1998	CR	260	5.560681631		952	0.7
76	4/8/1998	CR	212	5.356586275	1	779	0.5
77	2/10/1999	CR	83	4.418840608		190	0.0
78	3/15/1999	CR	244	5.497168225		916	0.7
79	Apr-99	CR	142	4.955827058		420	0.2
80	2/16/2000	CR	138	4.927253685	0	589	0.4
81	3/15/2000	CR	196	5.278114659	0.5	829	0.6
82	3/6/2001	CR	200	5.298317367	0.8	994	0.7
83	Jan-02	CR	158	5.062595033	0.6	710	0.5
84	Jan-03	CR	314	5.749392986	0.9	1300	1.0

Equation:

$$\text{Salinity} = (\text{TDS}-220.98)/1044.7$$

count	84
Average	5.268837172
Stdev	0.33247477
St.Err	0.036275971
AGM	190.5

Note: Salinities that are missing for the hardness sampling days are projected using a linear regression between salinity and total dissolved solids. It generally shows good agreement between the observed salinity and the predicted salinity. All hardness that are 400 and below paired with salinity less than 1.0 ppt were used in the Adjusted geometric mean calculation.

Attachment 2

Effluent Data (Priority Inorganic Pollutants)

Raw Hardness/Salinity Data (1)					
No.	Date	Station	Hardness	Salinity	Predicted Salinity using TDS
1	2/10/1999	C1	80	188	0.0
2	2/10/1999	C2B	86	189	0.0
3	2/10/1999	CR	83	189	0.0
4	2/10/1999	C2A	80.4	196	0.0
5	2/10/1999	C2A	112	204	0.0
6	2/10/1999	C2B	112	209	0.0
7	2/10/1999	CR	110	213	0.0
8	2/10/1999	C2A	140	245	0.1
9	4/2/1999	C1	200	394	0.1
10	4/2/1999	C2B	160	304	0.1
11	4/2/1999	CR	160	305	0.1
12	4/2/1999	C2A	138	373	0.1
13	4/2/1999	C1	170	376	0.1
14	3/6/1999	EFF	170	378	0.2
15	3/6/1999	C2B	143	393	0.2
16	3/6/1999	C2A	174	395	0.2
17	3/6/1999	CR	174	398	0.2
18	3/6/1999	EFF	174	398	0.2
19	3/6/1999	C2B	174	398	0.2
20	3/6/1999	C2A	158	410	0.2
21	2/10/1999	EFF	158	410	0.2
22	2/10/1999	CR	142	420	0.2
23	2/10/1999	EFF	164	423	0.2
24	3/15/1999	EFF	156	445	0.2
25	3/15/1999	CR	190	448	0.2
26	3/15/1999	EFF	190	448	0.2
27	3/15/1999	CR	160	461	0.2
28	3/15/1999	CR	160	463	0.2
29	3/15/1999	CR	160	463	0.2
30	3/15/1999	CR	160	470	0.2
31	3/15/1999	CR	160	477	0.2
32	3/15/1999	CR	160	477	0.2
33	3/15/1999	CR	160	477	0.2
34	3/15/1999	CR	160	477	0.2
35	3/15/1999	CR	160	477	0.2
36	3/15/1999	CR	160	477	0.2
37	3/15/1999	CR	160	477	0.2
38	3/15/1999	CR	160	477	0.2
39	3/15/1999	CR	160	477	0.2
40	3/15/1999	CR	160	477	0.2
41	3/15/1999	CR	160	477	0.2
42	3/15/1999	CR	160	477	0.2
43	3/15/1999	CR	160	477	0.2
44	3/15/1999	CR	160	477	0.2
45	3/15/1999	CR	160	477	0.2
46	3/15/1999	CR	160	477	0.2
47	3/15/1999	CR	160	477	0.2
48	3/15/1999	CR	160	477	0.2
49	3/15/1999	CR	160	477	0.2
50	3/15/1999	CR	160	477	0.2
51	3/15/1999	CR	160	477	0.2
52	3/15/1999	CR	160	477	0.2
53	3/15/1999	CR	160	477	0.2
54	3/15/1999	CR	160	477	0.2
55	3/15/1999	CR	160	477	0.2
56	3/15/1999	CR	160	477	0.2
57	3/15/1999	CR	160	477	0.2
58	3/15/1999	CR	160	477	0.2
59	3/15/1999	CR	160	477	0.2
60	3/15/1999	CR	160	477	0.2
61	3/15/1999	CR	160	477	0.2
62	3/15/1999	CR	160	477	0.2
63	3/15/1999	CR	160	477	0.2
64	3/15/1999	CR	160	477	0.2
65	3/15/1999	CR	160	477	0.2
66	3/15/1999	CR	160	477	0.2
67	3/15/1999	CR	160	477	0.2
68	3/15/1999	CR	160	477	0.2
69	3/15/1999	CR	160	477	0.2
70	3/15/1999	CR	160	477	0.2
71	3/15/1999	CR	160	477	0.2
72	3/15/1999	CR	160	477	0.2

Raw Hardness/Salinity Data (2)					
No.	Date	Station	Hardness	Salinity	Predicted Salinity using TDS
73	2/10/2000	C1	144	593	0.4
74	2/10/2000	C2A	200	598	0.4
75	2/10/2000	C2B	200	599	0.4
76	2/10/2000	EFF	160	600	0.4
77	2/10/2000	CR	220	608	0.4
78	2/10/2000	CR	168	611	0.4
79	2/10/2000	CR	168	611	0.4
80	2/10/2000	CR	168	611	0.4
81	2/10/2000	CR	168	611	0.4
82	2/10/2000	CR	168	611	0.4
83	2/10/2000	CR	168	611	0.4
84	2/10/2000	CR	168	611	0.4
85	2/10/2000	CR	168	611	0.4
86	2/10/2000	CR	168	611	0.4
87	2/10/2000	CR	168	611	0.4
88	2/10/2000	CR	168	611	0.4
89	2/10/2000	CR	168	611	0.4
90	2/10/2000	CR	168	611	0.4
91	2/10/2000	CR	168	611	0.4
92	2/10/2000	CR	168	611	0.4
93	2/10/2000	CR	168	611	0.4
94	2/10/2000	CR	168	611	0.4
95	2/10/2000	CR	168	611	0.4
96	2/10/2000	CR	168	611	0.4
97	2/10/2000	CR	168	611	0.4
98	2/10/2000	CR	168	611	0.4
99	2/10/2000	CR	168	611	0.4
100	2/10/2000	CR	168	611	0.4
101	2/10/2000	CR	168	611	0.4
102	2/10/2000	CR	168	611	0.4
103	2/10/2000	CR	168	611	0.4
104	2/10/2000	CR	168	611	0.4
105	2/10/2000	CR	168	611	0.4
106	2/10/2000	CR	168	611	0.4
107	2/10/2000	CR	168	611	0.4
108	2/10/2000	CR	168	611	0.4
109	2/10/2000	CR	168	611	0.4
110	2/10/2000	CR	168	611	0.4
111	2/10/2000	CR	168	611	0.4
112	2/10/2000	CR	168	611	0.4
113	2/10/2000	CR	168	611	0.4
114	2/10/2000	CR	168	611	0.4
115	2/10/2000	CR	168	611	0.4
116	2/10/2000	CR	168	611	0.4
117	2/10/2000	CR	168	611	0.4
118	2/10/2000	CR	168	611	0.4
119	2/10/2000	CR	168	611	0.4
120	2/10/2000	CR	168	611	0.4
121	2/10/2000	CR	168	611	0.4
122	2/10/2000	CR	168	611	0.4
123	2/10/2000	CR	168	611	0.4
124	2/10/2000	CR	168	611	0.4
125	2/10/2000	CR	168	611	0.4
126	2/10/2000	CR	168	611	0.4
127	2/10/2000	CR	168	611	0.4
128	2/10/2000	CR	168	611	0.4
129	2/10/2000	CR	168	611	0.4
130	2/10/2000	CR	168	611	0.4
131	2/10/2000	CR	168	611	0.4
132	2/10/2000	CR	168	611	0.4
133	2/10/2000	CR	168	611	0.4
134	2/10/2000	CR	168	611	0.4
135	2/10/2000	CR	168	611	0.4
136	2/10/2000	CR	168	611	0.4
137	2/10/2000	CR	168	611	0.4
138	2/10/2000	CR	168	611	0.4
139	2/10/2000	CR	168	611	0.4
140	2/10/2000	CR	168	611	0.4
141	2/10/2000	CR	168	611	0.4
142	2/10/2000	CR	168	611	0.4
143	2/10/2000	CR	168	611	0.4
144	2/10/2000	CR	168	611	0.4

Raw Hardness/Salinity Data (3)					
No.	Date	Station	Hardness	Salinity	Predicted Salinity using TDS
145	2/10/2000	C2B	700	3.3	3500
146	2/10/2000	C2A	720	3.4	3500
147	2/10/2000	CR	720	3.5	3600
148	2/10/2000	CR	720	3.6	3600
149	2/10/2000	C2A	720	3.6	3600
150	2/10/2000	C2B	760	3.7	3700
151	2/10/2000	CR	760	3.7	3700
152	2/10/2000	CR	800	3.8	3800
153	2/10/2000	CR	800	3.8	3800
154	2/10/2000	CR	800	3.8	3800
155	2/10/2000	CR	800	3.8	3800
156	2/10/2000	CR	800	3.8	3800
157	2/10/2000	CR	800	3.8	3800
158	2/10/2000	CR	800	3.8	3800
159	2/10/2000	CR	800	3.8	3800
160	2/10/2000	CR	800	3.8	3800
161	2/10/2000	CR	800	3.8	3800
162	2/10/2000	CR	800	3.8	3800
163	2/10/2000	CR	800	3.8	3800
164	2/10/2000	CR	800	3.8	3800
165	2/10/2000	CR	800	3.8	3800
166	2/10/2000	CR	800	3.8	3800
167	2/10/2000	CR	800	3.8	3800
168	2/10/2000	CR	800	3.8	3800
169	2/10/2000	CR	800	3.8	3800
170	2/10/2000	CR	800	3.8	3800
171	2/10/2000	CR	800	3.8	3800
172	2/10/2000	CR	800	3.8	3800
173	2/10/2000	CR	800	3.8	3800
174	2/10/2000	CR	800	3.8	3800
175	2/10/2000	CR	800	3.8	3800
176	2/10/2000	CR	800	3.8	3800
177	2/10/2000	CR	800	3.8	3800
178	2/10/2000	CR	800	3.8	3800
179	2/10/2000	CR	800	3.8	3800
180	2/10/2000	CR	800	3.8	3800
181	2/10/2000	CR	800	3.8	3800
182	2/10/2000	CR	800	3.8	3800
183	2/10/2000	CR	800	3.8	3800
184	2/10/2000	CR	800	3.8	3800
185	2/10/2000	CR	800	3.8	3800
186	2/10/2000	CR	800	3.8	3800
187	2/10/2000	CR	800	3.8	3800
188	2/10/2000	CR	800	3.8	3800
189	2/10/2000	CR	800	3.8	3800
190	2/10/2000	CR	800	3.8	3800
191	2/10/2000	CR	800	3.8	3800
192	2/10/2000	CR	800	3.8	3800
193	2/10/2000	CR	800	3.8	3800
194	2/10/2000	CR	800	3.8	3800
195	2/10/2000	CR	800	3.8	3800
196	2/10/2000	CR	800	3.8	3800
197	2/10/2000	CR	800	3.8	3800
198	2/10/2000	CR	800	3.8	3800
199	2/10/2000	CR	800	3.8	3800
200	2/10/2000	CR	800	3.8	3800

Raw Hardness/Salinity Data (3)					
No.	Date	Station	Hardness	Salinity	Predicted Salinity using TDS
217	12/2/2001	C1	2000	10249	9.8
218	12/2/2001	C2A	1980	10261	9.6
219	12/2/2001	C2B	2220	10305	9.7
220	12/2/2001	CR	2040	10361	9.7
221	12/2/2001	C2A	1980	10416	9.8
222	12/2/2001	C2B	2020	10434	9

City of Petaluma
Raw Effluent Data (Inorganics)

note *	mercury Jan 2000 data is an average of four values
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Attachment 3

RPA Results for Priority Pollutants

City of Petaluma
Reasonable Potential Analysis (RPA)1 of 2

City of Petaluma
Reasonable Potential Analysis (RPA)

Beginnings	Step 2		Step 3	Step 4		Step 5		Step 6		Step 7 & 8		Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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Consent/first date "No Criteria" for no C (up/L)	Effluent Available diectric (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Concentration from the effluent (MEC) mg/L If data points are ND and MEC-C is not monitoring MEC-C then MEC-C is required	MEC up C	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Enter the pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Are all points entering pollutant into river (up/L)	Final Result
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a. The most stringent of air and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section 0101 of CTR (DOCR 131.38), these criteria should use Basic Plan objectives, criteria for Se and Ch are specified by the NTR.

c. Criteria for copper is taken from CTR. Criteria for copper is expressed as dissolved metals. The copper criterion is adjusted by dividing a factor of 0.83 to convert the dissolved to total metal concentration.

d. The freshwater criteria for Selenium is taken from NTR.

e. Not enough determining reasonable potential due to the absence of data, or because Maximum DL is greater than water quality objective (CTR) value.

f. Acronym in the "Final Result" column.

W. Information missing is required.

Attachment 4

Calculation of Final WQBELs

Fact Sheet Attachment 4

City of Petaluma
Calculation of Final WQBELs

PRIORITY POLLUTANTS	Copper	Mercury	Nickel	Selenium	Cyanide	Bis(2-Ethylhexyl) Phthalate	TCDD TEQ
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pg/L
Basis and Criteria type	CTR SW	BP SW (4-d, 1-hr avg)	BP SW (24-hr, Max)	BP _i	CTR SW	CTR hh	CTR _{hh}
Lowest WQO	3.73	0.025	8.28	5.00	1.00	5.90	0.014
Translators							
Dilution Factor (D) (if applicable)	0	0	0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	N	N
HH criteria analysis required? (Y/N)	N	Y	Y	N	Y	Y	Y
Applicable Acute WQO	5.78	2.1	75	20	1	na	na
Applicable Chronic WQO	3.73	0.025	8.28	5	1	na	na
HH criteria		0.051	4600		220000	5.9	0.014
Background (max conc for Aq Life calc)	14.7	0.018	24.5	12	3		0.0527
Background (avg conc for HH calc)							
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	Y	N	Y	N	N	Y
ECA acute	5.783133	2.1	74.7474747	20	1		
ECA chronic	3.73494	0.025	8.28282828	5	1		
ECA HH		0.051	4600		220000	5.9	0.014
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	Y	N
Avg of effluent data points	3.261	0.0071	4.055		3.14		
Std Dev of effluent data points	1.108	0.0037	1.130				
CV calculated	0.34	0.52	0.28	N/A	0.64		N/A
CV (Selected) - Final	0.34	0.52	0.28	0.60	0.64	0.60	0.6
ECA acute mult99	0.49	0.36	0.55	0.32	0.30		
ECA chronic mult99	0.69	0.57	0.73	0.53	0.51		
LTA acute	2.83	0.75	41.07	6.42	0.30		
LTA chronic	2.56	0.014	6.057	2.64	0.51		
minimum of LTAs	2.56	0.014	6.057	2.64	0.30		
AMEL mult95	1.30	1.48	1.24	1.55	1.59	1.55	1.55
MDEL mult99	2.04	2.78	1.82	3.11	3.29	3.11	3.11
AMEL (aq life)	3.33	0.021	7.54	4.09	0.48		
MDEL(aq life)	5.23	0.040	11.02	8.21	1.00		
MDEL/AMEL Multiplier	1.57	1.88	1.46	2.01	2.07	2.01	2.01
AMEL (human hlth)		0.051	4600		220000	6	0.014
MDEL (human hlth)		0.096	6728		454843	12	0.028
minimum of AMEL for Aq. life vs HH	3.3	0.021	7.5	4.1	0.5	5.9	0.014
minimum of MDEL for Aq. Life vs HH	5.2	0.040	11	8.2	1.0	11.8	0.028
Max Effl Conc (MEC)	6.0	0.021	6.8	2.0	10	12	8.73
Previous Permit Limit	4.9	0.012	7.1	na	14	na	na
Compliance feasibility with WQBELs or previous Permit limit, whichever is more stringent	No	No	Yes	Yes	No	No	No
99.87th percentile	7.9	na	na	na	16.5		na
Limit in new permit	7.9	0.021/0.04	7.1	4.1/8.2	14	no limit	no limit

Attachment 5

General Basis for Final Compliance Dates

Fact Sheet Attachment 5

General Basis for Final Compliance Dates [1]
for Discharges North of the Dumbarton Bridge
Revised March 21, 2005

Constituent	Reference for applicable standard	Maximum compliance schedule allowed	Compliance date and Basis
Cyanide Selenium	NTR	10 years	April 28, 2010 (10 years from effective date of SIP). Basis is the SIP.
Copper (salt)	CTR	5 years	May 18, 2010 (this is 10 years from effective date of CTR/SIP). Bases are CTR and SIP.
Cadmium (fresh) Mercury PAH EPA 610	Numeric Basin Plan (BP)	10 years	April 28, 2010 , which is 10 years from effective date of SIP (April 28, 2000). Basis is the Basin Plan, See note [2a].
Arsenic Cadmium (salt) Chromium (VI) Copper (fresh) Lead Nickel Silver (CMC) Zinc	Numeric BP	10 years	January 1, 2015 . This is 10 years (using full months) from effective date of 2004 BP amendment (January 5, 2005). Basis is the Basin Plan section 4.3.5.6. See note [2b]. Also, see note [3] for permits issued prior to effective date of 2004 BP amendment.
Dioxins/Furans Tributyltin Other toxic pollutants not in CTR	Narrative BP using SIP methodology	10 years	10-yr from effective date of permit (which is when new standard is adopted; no sunset date). Basis is the Basin Plan, see note [2c].
Other priority pollutants on CTR and not listed above	CTR	5 years	May 18, 2010 (this is 10 years from effective date of CTR/SIP). Basis is the CTR and SIP.

[1] These dates are maximum allowable compliance dates applicable. As required by the Basin Plan, CTR, SIP, and 40CFR122.47, compliance should be as short as possible. These are only applicable for discharges north of the Dumbarton Bridge because applicable criteria for the south bay are different than those cited above.

- For pollutants where there are planned TMDLs or SSOs, and final WQBELs may be affected by those TMDLs and SSOs, maximum timeframes may be appropriate due the uncertain length of time it takes to develop the TMDL/SSO.
- However, for pollutants without planned TMDLs or SSOs, the State Water Board in the EBMUD remand order (WQO 2002-0012), directs the Regional Water Board to establish schedules that are as short as feasible in accordance with requirements.

[2] The Basin Plan provides for a 10-year compliance schedule for implementation of measures to comply with new standards as of the effective date of those standards. This provision has been construed to authorize compliance schedules for new interpretations of existing standards, such as the numeric and narrative water quality objectives specified in the Basin Plan, if the new interpretations result in more stringent limits than in the previous permit.

- a. For the numeric objectives in place since the 1995 Basin Plan, due to the adoption of the SIP, the Regional Water Board has newly interpreted these objectives. The effective date of this new interpretation is the effective date of the SIP (April 28, 2000) for implementation of these numeric Basin Plan objectives.

- b. For numeric objectives for the seven pollutants adopted in the 2004 Basin Plan (amendments), the Regional Water Board has newly adopted these objectives. The effective date of these new objectives is the approval date of the 2004 Basin Plan by U.S. EPA (January 5, 2005) for implementation of these numeric Basin Plan objectives. December is the last full month directly preceding the sunset date. Compliance should be set on the first day of the month to ease determination of monthly average limits. Therefore, compliance must begin on January 1, 2015.
- c. For narrative objectives, the Regional Water Board must newly interpreted these objectives using best professional judgment as defined in the Basin Plan for each permit. Therefore, the effective date of this new interpretation will be the effective date of the permit.

[3] The schedules established in permits effective prior to the 2004 Basin Plan (amendments) should be continued into subsequent permits reissued after the 2004 Basin Plan. For example, Permit XX, adopted Nov 2004 became effective Feb 1, 2005. Permit XX establishes a compliance schedule for copper to end April 1, 2010. When next reissued in 2010, the compliance deadline for the same copper limit should remain April 1, 2010. However, if in applying the 2004 BP objective results in a more stringent limit for copper, then a new compliance schedule may extend to the new date in 2015, provided discharger XX justifies the need for the longer compliance schedule.

Attachment 6

Mercury Mass Trigger Calculation

Fact Sheet Attachment 6

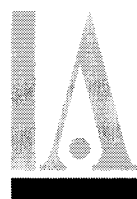
City of Petaluma
Mercury Mass Trigger Calculation

Date	Pond Influent (mgd)	E-001 Flow (mgd)	Reclamation Flow (mgd)	Hg	Load (kg/mo)	Moving Avg Flow (mgd)	Moving Avg Hg Con. (ug/L)	Mass Loading (kg/mo)
Jan-00	5.845	5.5765	0.047	0.00654	0.004198			
Feb-00	8.548	5.19	0	0.0101	0.006033			
Mar-00	6.687	6.845	0	0.0101	0.007957			
Apr-00	5.498	3.8623	0.087	0.0103	0.004579			
May-00	5.048	1.9494	3.077	0.00452	0.001014			
Jun-00	4.776	0.2764	5.509	0.00554	0.000176			
Jul-00	4.677	0	5.42	0.00593	0			
Aug-00	4.743	0	5.353	0.00421	0			
Sep-00	4.820	0	4.23	0.0043	0			
Oct-00	5.050	0	1.94	0.0044	0			
Nov-00	5.000	6.3	0.05	0.0046	0.003336			
Dec-00	4.890	7.06	0	0.0055	0.004469	3.088	0.006	0.0023
Jan-01	5.260	6.51	0.045	0.0061	0.004571	3.166	0.006	0.0023
Feb-01	7.590	6.11	0	0.0065	0.004571	3.243	0.006	0.0022
Mar-01	6.360	6.58	0.13	0.0073	0.005529	3.221	0.006	0.0021
Apr-01	4.980	4.47	0.27	0.0052	0.002675	3.271	0.005	0.0020
May-01	4.860	0	5.24	0.0065	0	3.109	0.006	0.0020
Jun-01	4.790	0	5.63	0.0038	0	3.086	0.005	0.0019
Jul-01	4.630	0	4.67	0.0035	0	3.086	0.005	0.0018
Aug-01	4.620	0	4.05	0.0035	0	3.086	0.005	0.0018
Sep-01	4.580	0	3.44	0.003	0	3.086	0.005	0.0018
Oct-01	4.580	0	2.93	0.0034	0	3.086	0.005	0.0017
Nov-01	6.870	6.3	0	0.0037	0.002683	3.086	0.005	0.0017
Dec-01	9.101	9.112	0	0.0048	0.005034	3.257	0.005	0.0018
Jan-02	7.280	8.96	0	0.0066	0.006807	3.461	0.005	0.0019
Feb-02	6.029	7.62	0	0.0065	0.005701	3.587	0.005	0.0020
Mar-02	5.138	7.542	0	0.0061	0.005295	3.667	0.005	0.0020
Apr-02	4.962	4.289	0.965	0.0005	0.000247	3.652	0.004	0.0018
May-02	5.392	0	4.015	0.0057	0	3.652	0.004	0.0018
Jun-02	5.083	0	5.881	0.0036	0	3.652	0.004	0.0018
Jul-02	4.820	0	5.468	0.0045	0	3.652	0.004	0.0018
Aug-02	4.720	0	5.809	0.0063	0	3.652	0.005	0.0019
Sep-02	5.891	0	3.969	0.0071	0	3.652	0.005	0.0021
Oct-02	5.068	0	1.08	0.0061	0	3.652	0.005	0.0022
Nov-02	5.030	6.016	0	0.0056	0.003878	3.628	0.005	0.0022
Dec-02	8.230	9.4	0	0.0057	0.006167	3.652	0.005	0.0023
Jan-03	6.255	9.482	0	0.0084	0.009168	3.696	0.006	0.0023
Feb-03	5.530	7.33	0	0.0059	0.004978	3.672	0.005	0.0023
Mar-03	5.659	6.691	0	0.01	0.007701	3.601	0.006	0.0024
Apr-03	5.760	5.109	0.036	0.021	0.012349	3.669	0.007	0.0032
May-03	5.361	2.779354839	1.905935484	0.0057	0.001823	3.901	0.007	0.0034
Jun-03	4.934	0	4.934		0	3.901	0.008	0.0035
Jul-03	4.553	0	5.72		0	3.901	0.008	0.0037
Aug-03	4.312	0	4.804		0	3.901	0.008	0.0038
Sep-03	4.302	0	4.323		0	3.901	0.009	0.0038
Oct-03	4.257	0	2.613		0	3.901	0.009	0.0040
Nov-03	4.650	8.77	0	0.0043	0.004341	4.130	0.009	0.0041
Dec-03	6.673	10.3	0	0.0055	0.00652	4.205	0.009	0.0042
Jan-04	6.380	10.16	0	0.014	0.016372	4.262	0.009	0.0047
Feb-04	7.704	10.27	0	0.0089	0.01052	4.507	0.010	0.0051
Mar-04	5.910	8.583	0.006	0.0065	0.006421	4.664	0.009	0.0051

Avg Mass Loading	0.0021
Mass trigger=Max Mass Loading	0.0051

Attachment 7

Total Coliform Conditions in the Petaluma River (Technical Memorandum)



Memorandum

DATE: 14 October 2005

TO: Margaret Orr
Engineering Manager
City of Petaluma

SUBJECT: Total coliform conditions in the Petaluma River

Stephen McCord

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Davis, CA 95616

530.753.6400

530.753.7030 fax

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Overview

Effluent limitations for shallow water discharges in the immediate vicinity of public contact or shellfish harvesting are required to be 240 MPN/100mL as a daily maximum and 2.2 MPN/100ML as a seven-sample median (Basin Plan Table 4-2). But footnote (e) to Table 4-2 states, "Exceptions to these limitations may be granted by the Regional Board where it is demonstrated that beneficial uses will not be compromised by such an exception." The City of Petaluma's NPDES permits since 1974 have included total coliform limits of 23 MPN/100mL as a 7-sample median concentration and 240 MPN/100mL as a maximum concentration.

This study demonstrates that the exception applies to discharges into the Petaluma River by the City's municipal wastewater facility during the normal discharge period and in the event of emergency dry season discharges.

Beneficial Uses Assessment

Through the City's self-monitoring program, receiving water quality and beneficial uses in the vicinity of the City's outfall in the Petaluma River are monitored monthly during the river discharge season. Water contact recreation and shellfish harvesting, activities that could potentially be impacted by high coliform concentrations, have not been recorded as far back as January 2000. Shellfish habitat is not listed in the Basin Plan as a beneficial use for the Petaluma River or its tributaries.

Total Coliform Levels

The evaluation considers conditions during the wet and dry seasons separately. Note that the total coliform analysis only quantifies to an upper limit of detection of 1600 MPN/100mL, where "MPN" means "Most Probable Number". For the purposes of this study, values of ">1600" were considered to be equal to 1600 MPN/100mL, which conservatively represents total coliform concentrations in the Petaluma River. River samples were collected as single grab samples once

per month during months of normal effluent discharge. Effluent samples were collected typically daily Monday through Friday.

Wet Season Conditions

To demonstrate that beneficial uses will not be compromised during the normal discharge period (October 21 – April 30), receiving water data for total coliform concentrations upstream and downstream of the City's outfall are evaluated. Median concentrations of total coliform in effluent discharged to the Petaluma River from January 2000 through May 2005 were less than 7 MPN/100mL, compared to median values upstream and downstream of 170-270 MPN/100mL during the same months of effluent discharge. The higher concentrations in the river are perceived to be the result of other local sources rather than significant re-growth of coliform in effluent because:

1. There is no spatial trend in the receiving water data (Figure 1), and
2. Total coliform concentrations measured in the Petaluma River are in the same range as concentrations measured in other local creeks (e.g., Novato Creek and Napa River receiving water monitoring data also indicate levels of 100-1600 MPN/100 mL).

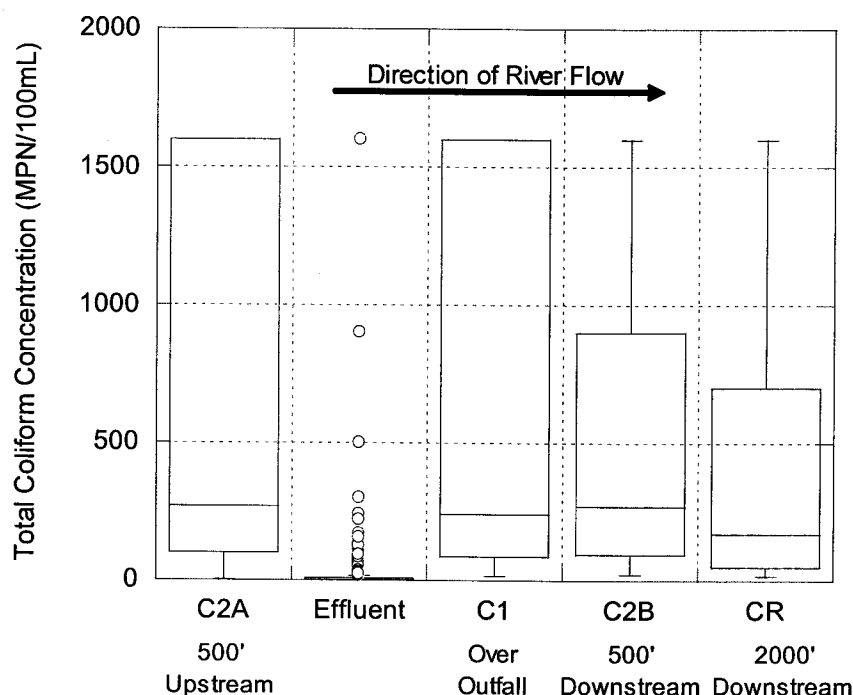


Figure 1. Total coliform concentrations measured in raw effluent and at receiving water stations during all months with river discharge.

In addition to the above comparison between effluent and receiving conditions, effluent total coliform concentrations, can also be compared directly to the Basin Plan water quality objectives for water contact recreation. As indicated in Figure 2, effluent total coliform concentrations never exceeded the applicable objectives during the 2000-2005 discharge period.

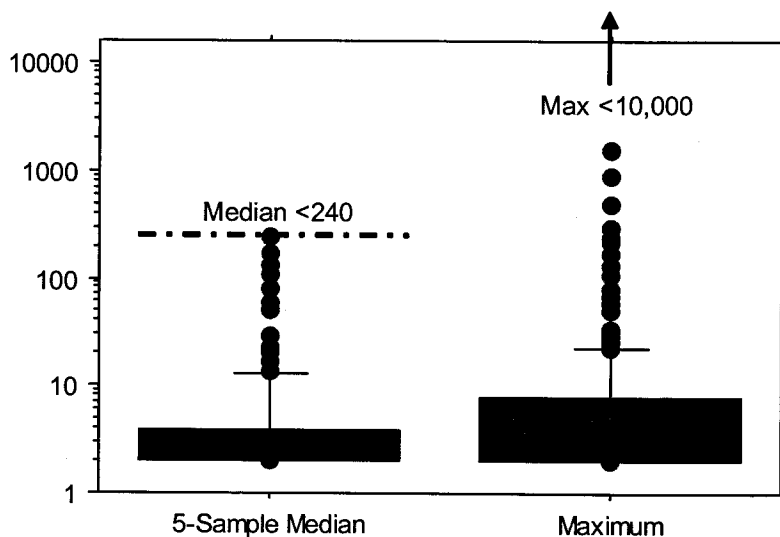


Figure 2. Total coliform concentrations measured in raw effluent during all months with river discharge, plotted on a log scale. The Basin Plan water quality objective for total coliform protective of water contact recreation is indicated as a 5-sample median <240 MPN/100mL and no sample >10,000 MPN/100mL.

Dry Season Conditions

To demonstrate that beneficial uses will not be compromised by emergency discharges during the prohibited discharge period (May 1 – October 20), receiving water data for total coliform concentrations collected from January 2000 through May 2005 upstream and downstream of the City's outfall are evaluated. Only effluent and receiving water data for months when receiving water salinity exceeded 5 parts per thousand (ppt) were included. This salinity concentration is the threshold for estuarine conditions, representative of dry season conditions with minimal freshwater flow.

Median concentrations of total coliform in effluent were 9 MPN/100mL, compared to median values upstream and downstream of 105-130 MPN/100mL. The higher concentrations in the river are perceived to be the result of other local sources rather than significant re-growth of coliform in effluent because:

1. There is no spatial trend in the receiving water data (Figure 3);
2. Coliform generally die off faster in warmer, saltier water; and
3. Total coliform concentrations measured in the Petaluma River are in the same range as concentrations measured in other local creeks (e.g., Napa River receiving water monitoring data also indicate levels of 100-1600 MPN/100 mL).

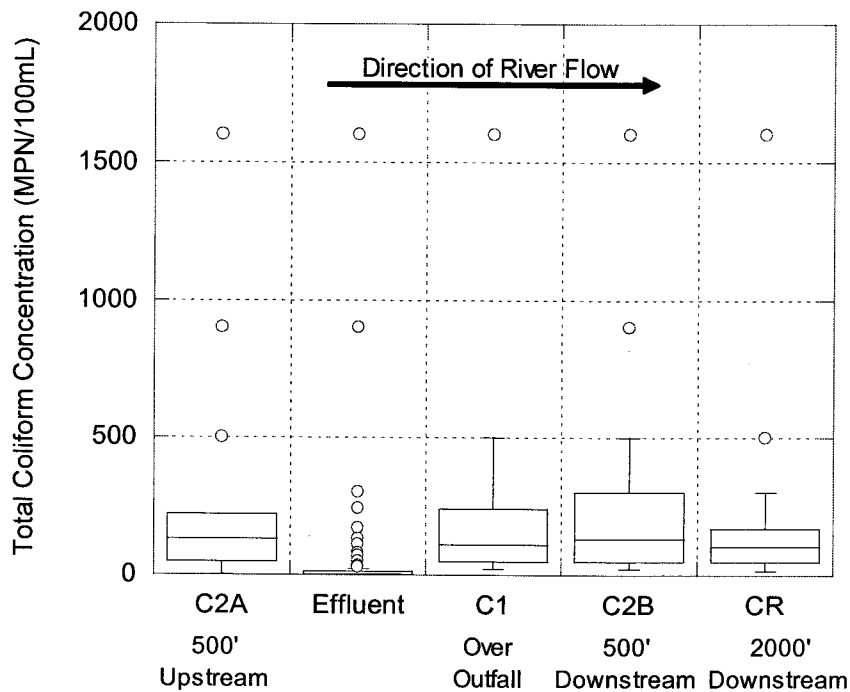


Figure 3. Total coliform concentrations measured in raw effluent and at receiving water stations during months with high salinity (>5 ppt). Values shown as 1600 were largely recorded as >1600.

Conclusions

This study of raw effluent and receiving water data for total coliform demonstrates that the exception for shallow water discharges applies to discharges into the Petaluma River by the City's municipal wastewater facility during the normal discharge period and in the event of emergency dry season discharges. The facility's raw effluent has not exceeded the Basin Plan water quality objectives for protecting the beneficial use of water contact recreation, and dilutes elevated ambient total coliform concentrations in the River.

Attachments

- (1) Receiving Water (Petaluma River Near Discharge Outfall) Total Coliform Monitoring Results
- (2) Effluent Total Coliform Monitoring Results

City of Petaluma
NPDES Permit Reissuance 2005
Petaluma River Total Coliform Monitoring Results

NOTES							
values of >1600 are recorded as 1600							
n	36	36	35	36	36	36	
Minimum	0	1	1	17	23	17	
Median	6	270	7	240	270	170	
Average	8	605	24	580	584	513	
Maximum	30	1600	156	1600	1600	1600	
	C2A	500' upstream		over	500' downstream	2000' upstream	
Month	Salinity (ppt)	C2A	Effluent	C1	C2B	CR	Recreation?
Jan-00	16	70	3	23	23	17	None
Feb-00	0	1600	4	1600	1600	1600	None
Mar-00	0.5	240	14	300	500	500	1 scull
Apr-00	3	500	130	280	500	110	None
May-00	7.6	220	9	500	500	300	None
Nov-00	15	40	28	70	80	50	None
Dec-00	15	50	2	30	130	130	None
Jan-01	15.1	170	5	90	300	170	None
Feb-01	9	170	5	110	240	80	None
Mar-01	0.8	1600	3	1600	1600	1600	a boat
Apr-01	8.2	900	24	220	170	500	None
Nov-01	29.6	30	9	80	30	50	None
Dec-01	2.9	1600	1	1600	400	1600	None
Jan-02	0.5	2	2	1600	1600	1600	None
Feb-02	3.3	30	1	30	50	50	None
Mar-02	3.4	300		240	110	40	None
Apr-02	7.3	30	17	27	70	50	None
Nov-02	15.7	130	84	110	50	17	None
Dec-02	15.9	1	1	130	50	50	None
Jan-03	8	1600	1	1600	1600	1600	None
Feb-03	2.5	23	7	17	30	30	None
Mar-03	4.6	300	17	130	900	170	None
Apr-03	7.7	130	124	240	900	170	None
May-03	4.9	300	156	300	220	140	None
Nov-03	20.3	170	11	27	130	80	None
Dec-03	18.9	130	4	130	130	130	None
Jan-04	1.7	1600	2	1600	900	500	None
Feb-04	1.7	1600	2	1600	1600	1600	None
Mar-04	0.5	1600	18	900	500	500	None
Apr-04	6.8	500	91	300	240	170	None
Nov-04	19.2	130	10	50	50	50	None
Dec-04	9.8	1600	1	1600	1600	1600	None
Jan-05	1.2	1600	1	1600	1600	900	None
Feb-05	2.4	300	5	240	130	220	None
Mar-05	0.9	900	23	1600	1600	500	None
Apr-05	3.6	1600	11	300	900	1600	None

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No.	Effluent Daily Maximum			5-Sample Moving Median		
	Date	Qualifier	Value	Date	Qualifier	Value
1	1/1/1999		2	1/7/1999		2
2	1/4/1999		2	1/8/1999		2
3	1/5/1999		2	1/11/1999	<	2
4	1/6/1999	<	2	1/12/1999	<	2
5	1/7/1999		2	1/13/1999	<	2
6	1/8/1999	<	2	1/14/1999	<	2
7	1/11/1999	<	2	1/15/1999		2
8	1/12/1999		2	1/18/1999		2
9	1/13/1999	<	2	1/19/1999		2
10	1/14/1999		2	1/20/1999		2
11	1/15/1999		4	1/21/1999	<	2
12	1/18/1999		2	1/22/1999	<	2
13	1/19/1999	<	2	1/25/1999	<	2
14	1/20/1999	<	2	1/26/1999	<	2
15	1/21/1999	<	2	1/27/1999	<	2
16	1/22/1999	<	2	1/28/1999	<	2
17	1/25/1999	<	2	1/29/1999	<	2
18	1/26/1999	<	2	1/1/2000	<	2
19	1/27/1999	<	2	1/2/2000	<	2
20	1/28/1999	<	2	1/3/2000	<	2
21	1/29/1999	<	2	1/4/2000	<	2
22	1/1/2000	<	2	1/5/2000	<	2
23	1/2/2000	<	2	1/6/2000	<	2
24	1/3/2000	<	2	1/7/2000	<	2
25	1/4/2000	<	2	1/8/2000	<	2
26	1/5/2000	<	2	1/9/2000	<	2
27	1/6/2000	<	2	1/10/2000	<	2
28	1/7/2000	<	2	1/11/2000	<	2
29	1/8/2000	<	2	1/12/2000	<	2
30	1/9/2000	<	2	1/13/2000	<	2
31	1/10/2000		4	1/14/2000		4
32	1/11/2000	<	2	1/17/2000	<	2
33	1/12/2000	<	2	1/18/2000	<	2
34	1/13/2000		4	1/19/2000		2
35	1/14/2000		30	1/20/2000	<	2
36	1/17/2000	<	2	1/24/2000	<	2
37	1/18/2000	<	2	1/25/2000	<	2
38	1/19/2000		2	1/26/2000	<	2
39	1/20/2000	<	2	1/27/2000	<	2
40	1/24/2000	<	2	1/28/2000	<	2
41	1/25/2000		2	1/31/2000	<	2
42	1/26/2000	<	2	2/1/2000	<	2
43	1/27/2000	<	2	2/2/2000	<	2
44	1/28/2000		2	2/3/2000	<	2
45	1/31/2000	<	2	2/4/2000	<	2
46	2/1/2000	<	2	2/7/2000		2
47	2/2/2000	<	2	2/8/2000		2
48	2/3/2000		4	2/9/2000		4
49	2/4/2000		8	2/10/2000		4
50	2/7/2000		2	2/11/2000		4
51	2/8/2000	<	2	2/14/2000		8

No.	Effluent Daily Maximum			5-Sample Moving Median		
	Date	Qualifier	Value	Date	Qualifier	Value
52	2/9/2000		4	2/15/2000		8
53	2/10/2000		8.2	2/16/2000		8
54	2/11/2000		23	2/17/2000		4
55	2/14/2000		8	2/18/2000		2
56	2/15/2000		4	2/21/2000		2
57	2/16/2000		2	2/22/2000		2
58	2/17/2000	<	2	2/23/2000		2
59	2/18/2000		2	2/24/2000		4
60	2/21/2000		4	2/25/2000		4
61	2/22/2000	<	2	2/27/2000	<	2
62	2/23/2000		4	2/28/2000	<	2
63	2/24/2000		14	2/29/2000	<	2
64	2/25/2000	<	2	3/1/2000	<	2
65	2/27/2000	<	2	3/2/2000	<	2
66	2/28/2000	<	2	3/3/2000		2
67	2/29/2000	<	2	3/6/2000		2
68	3/1/2000		2	3/7/2000		4
69	3/2/2000		8	3/8/2000		4
70	3/3/2000		2	3/9/2000		4
71	3/6/2000		4	3/10/2000		8
72	3/7/2000		13	3/13/2000		8
73	3/8/2000		4	3/14/2000		8
74	3/9/2000		13	3/15/2000		8
75	3/10/2000		8	3/16/2000		8
76	3/13/2000		8	3/17/2000		13
77	3/14/2000	<	7	3/20/2000		13
78	3/15/2000		13	3/21/2000		13
79	3/16/2000		50	3/22/2000		8
80	3/17/2000		23	3/23/2000		8
81	3/20/2000		8	3/24/2000		8
82	3/21/2000		4	3/27/2000		13
83	3/22/2000		8	3/28/2000		13
84	3/23/2000		13	3/29/2000		13
85	3/24/2000		50	3/30/2000		23
86	3/27/2000		30	3/31/2000		12
87	3/28/2000		12	4/3/2000		12
88	3/29/2000		9	4/4/2000		23
89	3/30/2000		23	4/5/2000		50
90	3/31/2000		11	4/6/2000		130
91	4/3/2000		1600	4/7/2000		130
92	4/4/2000		50	4/8/2000		80
93	4/5/2000		130	4/9/2000		80
94	4/6/2000		170	4/10/2000		59
95	4/7/2000		80	4/11/2000		30
96	4/8/2000		59	4/12/2000		30
97	4/9/2000		22	4/15/2000		23
98	4/10/2000		30	4/17/2000		30
99	4/11/2000		30	4/18/2000		23
100	4/12/2000		8	4/19/2000		8
101	4/15/2000		23	4/20/2000		23
102	4/17/2000		30	4/24/2000		9

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
103	4/18/2000	<	2	4/25/2000		4
104	4/19/2000		4	4/26/2000		4
105	4/20/2000		80	5/1/2000		4
106	4/24/2000		9	5/2/2000	<	2
107	4/25/2000	<	2	5/3/2000	<	2
108	4/26/2000		4	5/4/2000	<	2
109	5/1/2000	<	2	5/5/2000	<	2
110	5/2/2000	<	2	5/6/2000	<	2
111	5/3/2000	<	2	5/7/2000	<	2
112	5/4/2000	<	2	5/8/2000	<	2
113	5/5/2000	<	2	5/9/2000	<	2
114	5/6/2000	<	2	5/10/2000	<	2
115	5/7/2000	<	2	5/11/2000	<	2
116	5/8/2000	<	2	5/12/2000	<	2
117	5/9/2000	<	2	5/13/2000	<	2
118	5/10/2000	<	2	5/14/2000	<	2
119	5/11/2000	<	2	5/16/2000	<	2
120	5/12/2000	<	2	5/17/2000	<	2
121	5/13/2000	<	2	5/18/2000		8
122	5/14/2000	<	2	5/19/2000		8
123	5/16/2000		8	5/20/2000		8
124	5/17/2000		8	5/21/2000		8
125	5/18/2000		17	5/22/2000		6
126	5/19/2000		13	5/23/2000		4
127	5/20/2000	<	2	5/24/2000		4
128	5/21/2000		4	5/25/2000		6
129	5/22/2000		6	5/26/2000		8
130	5/23/2000		4	5/27/2000		13
131	5/24/2000		14	5/28/2000		14
132	5/25/2000		8	5/29/2000		13
133	5/26/2000		23	5/30/2000		13
134	5/27/2000		13	5/31/2000		13
135	5/28/2000		110	6/1/2000		2
136	5/29/2000		13	6/2/2000		2
137	5/30/2000		2	6/3/2000	<	2
138	5/31/2000		2	6/4/2000	<	2
139	6/1/2000	<	2	6/5/2000	<	2
140	6/2/2000	<	2	6/6/2000	<	2
141	6/3/2000	<	2	6/7/2000	<	2
142	6/4/2000	<	2	6/8/2000	<	2
143	6/5/2000	<	2	6/9/2000	<	2
144	6/6/2000	<	2	6/10/2000	<	2
145	6/7/2000	<	2	6/11/2000	<	2
146	6/8/2000	<	2	6/12/2000		2
147	6/9/2000	<	2	6/13/2000		2
148	6/10/2000		4	6/14/2000		2
149	6/11/2000		2	6/15/2000		2
150	6/12/2000		2	6/16/2000	<	2
151	6/13/2000		7	6/17/2000	<	2
152	6/14/2000	<	2	6/18/2000	<	2
153	6/15/2000	<	2	6/19/2000		2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
154	6/16/2000	<	2	6/20/2000		4
155	6/17/2000		4	6/21/2000		13
156	6/18/2000		30	6/22/2000		13
157	6/19/2000		2	6/23/2000		13
158	6/20/2000		13	6/24/2000		17
159	6/21/2000		900	6/25/2000		17
160	6/22/2000		4	6/26/2000		4
161	6/23/2000		27	6/27/2000		4
162	6/24/2000		17	6/28/2000		4
163	6/25/2000		4	6/29/2000		4
164	6/26/2000		4	6/30/2000		4
165	6/27/2000		4	7/1/2000		4
166	6/28/2000	<	2	7/2/2000	<	2
167	6/29/2000	<	2	7/5/2000	<	2
168	6/30/2000		4	7/6/2000		4
169	7/1/2000		4	7/7/2000		4
170	7/2/2000	<	2	7/8/2000		13
171	7/5/2000	<	2	7/9/2000		13
172	7/6/2000		13	7/10/2000		13
173	7/7/2000		240	7/11/2000		2
174	7/8/2000		130	7/12/2000	<	2
175	7/9/2000	<	2	7/13/2000	<	2
176	7/10/2000		2	7/14/2000	<	2
177	7/11/2000	<	2	7/15/2000	<	2
178	7/12/2000	<	2	7/16/2000	<	2
179	7/13/2000	<	2	7/17/2000	<	2
180	7/14/2000		2	7/18/2000		2
181	7/15/2000	<	2	7/19/2000	<	2
182	7/16/2000	<	2	7/20/2000	<	2
183	7/17/2000		2	7/21/2000	<	2
184	7/18/2000		2	7/22/2000	<	2
185	7/19/2000	<	2	7/23/2000	<	2
186	7/20/2000	<	2	7/24/2000	<	2
187	7/21/2000	<	2	7/25/2000	<	2
188	7/22/2000		2	7/26/2000	<	2
189	7/23/2000	<	2	7/27/2000	<	2
190	7/24/2000	<	2	7/28/2000	<	2
191	7/25/2000	<	2	7/29/2000	<	2
192	7/26/2000	<	2	7/30/2000	<	2
193	7/27/2000	<	2	7/31/2000	<	2
194	7/28/2000	<	2	8/1/2000	<	2
195	7/29/2000	<	2	8/2/2000	<	2
196	7/30/2000	<	2	8/3/2000	<	2
197	7/31/2000	<	2	8/4/2000	<	2
198	8/1/2000	<	2	8/7/2000	<	2
199	8/2/2000	<	2	8/8/2000	<	2
200	8/3/2000	<	2	8/9/2000	<	2
201	8/4/2000	<	2	8/10/2000		2
202	8/7/2000		2	8/11/2000		2
203	8/8/2000		2	8/12/2000		2
204	8/9/2000	<	2	8/13/2000	<	2

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
205	8/10/2000		2	8/14/2000	<	2
206	8/11/2000	<	2	8/15/2000	<	2
207	8/12/2000		2	8/16/2000	<	2
208	8/13/2000	<	2	8/17/2000	<	2
209	8/14/2000	<	2	8/18/2000	<	2
210	8/15/2000	<	2	8/19/2000	<	2
211	8/16/2000	<	2	8/20/2000	<	2
212	8/17/2000	<	2	8/21/2000	<	2
213	8/18/2000	<	2	8/22/2000	<	2
214	8/19/2000		2	8/24/2000	<	2
215	8/20/2000	<	2	8/25/2000	<	2
216	8/21/2000	<	2	8/26/2000	<	2
217	8/22/2000	<	2	8/27/2000	<	2
218	8/24/2000	<	2	8/28/2000	<	2
219	8/25/2000		2	8/29/2000	<	2
220	8/26/2000	<	2	8/30/2000	<	2
221	8/27/2000		2	8/31/2000	<	2
222	8/28/2000	<	2	9/1/2000	<	2
223	8/29/2000	<	2	9/2/2000	<	2
224	8/30/2000	<	2	9/3/2000	<	2
225	8/31/2000		2	9/4/2000		2
226	9/1/2000	<	2	9/5/2000		2
227	9/2/2000	<	2	9/6/2000		8
228	9/3/2000		13	9/7/2000		8
229	9/4/2000		2	9/8/2000		2
230	9/5/2000		9.3	9/9/2000		8
231	9/6/2000		8	9/10/2000		4
232	9/7/2000		2	9/11/2000		4
233	9/8/2000		2	9/12/2000		4
234	9/9/2000		8	9/13/2000		4
235	9/10/2000		4	9/14/2000	<	2
236	9/11/2000		8	9/15/2000	<	2
237	9/12/2000	<	2	9/16/2000	<	2
238	9/13/2000	<	2	9/17/2000	<	2
239	9/14/2000	<	2	9/18/2000	<	2
240	9/15/2000	<	2	9/19/2000	<	2
241	9/16/2000		8	9/20/2000	<	2
242	9/17/2000	<	2	9/21/2000	<	2
243	9/18/2000	<	2	9/22/2000	<	2
244	9/19/2000	<	2	9/23/2000		2
245	9/20/2000		8	9/24/2000		2
246	9/21/2000	<	2	9/25/2000	<	2
247	9/22/2000		30	9/26/2000		2
248	9/23/2000		2	9/27/2000		2
249	9/24/2000	<	2	9/28/2000		2
250	9/25/2000	<	2	9/29/2000		4
251	9/26/2000		2	9/30/2000		4
252	9/27/2000		8	10/1/2000		4
253	9/28/2000		8	10/2/2000		2
254	9/29/2000		4	10/3/2000		2
255	9/30/2000		2	10/4/2000		2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
256	10/1/2000	<	2	10/5/2000		2
257	10/2/2000		2	10/6/2000		8
258	10/3/2000		8	10/9/2000		8
259	10/4/2000	<	2	10/10/2000	<	2
260	10/5/2000		8	10/11/2000	<	2
261	10/6/2000		80	10/12/2000	<	2
262	10/9/2000	<	2	10/13/2000	<	2
263	10/10/2000	<	2	10/16/2000	<	2
264	10/11/2000	<	2	10/17/2000	<	2
265	10/12/2000	<	2	10/18/2000	<	2
266	10/13/2000	<	2	10/19/2000	<	2
267	10/16/2000	<	2	10/20/2000	<	2
268	10/17/2000	<	2	10/23/2000	<	2
269	10/18/2000	<	2	10/24/2000	<	2
270	10/19/2000	<	2	11/3/2000	<	2
271	10/20/2000	<	2	11/4/2000	<	2
272	10/23/2000	<	2	11/5/2000		23
273	10/24/2000	<	2	11/6/2000		23
274	11/3/2000		50	11/7/2000		30
275	11/4/2000		30	11/8/2000		30
276	11/5/2000		23	11/9/2000		23
277	11/6/2000		23	11/10/2000		23
278	11/7/2000		50	11/11/2000		23
279	11/8/2000		130	11/12/2000		23
280	11/9/2000		23	11/13/2000		23
281	11/10/2000		4	11/14/2000		23
282	11/11/2000		13	11/15/2000		23
283	11/12/2000		240	11/16/2000		23
284	11/13/2000		50	11/17/2000		13
285	11/14/2000		23	11/18/2000		4
286	11/15/2000		4	11/19/2000		4
287	11/16/2000		2	11/20/2000		7
288	11/17/2000		13	11/21/2000		7
289	11/18/2000		4	11/22/2000		4
290	11/19/2000		7	11/23/2000		4
291	11/20/2000		23	11/24/2000		2
292	11/21/2000		4	11/27/2000		2
293	11/22/2000		2	11/28/2000		2
294	11/23/2000		2	11/29/2000		2
295	11/24/2000	<	2	11/30/2000		2
296	11/27/2000		8	12/1/2000		4
297	11/28/2000		2	12/4/2000		2
298	11/29/2000	<	2	12/5/2000		4
299	11/30/2000		4	12/6/2000		4
300	12/1/2000		4	12/7/2000	<	2
301	12/4/2000	<	2	12/8/2000	<	2
302	12/5/2000		4	12/11/2000		2
303	12/6/2000	<	2	12/12/2000		2
304	12/7/2000	<	2	12/13/2000		2
305	12/8/2000		2	12/14/2000		2
306	12/11/2000		2	12/15/2000		2

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
307	12/12/2000		2	12/18/2000		2
308	12/13/2000		2	12/19/2000	<	2
309	12/14/2000	<	2	12/20/2000	<	2
310	12/15/2000	<	2	12/21/2000		2
311	12/18/2000		4	12/22/2000		2
312	12/19/2000	<	2	12/25/2000		2
313	12/20/2000		2	12/26/2000		2
314	12/21/2000		2	12/27/2000	<	2
315	12/22/2000	<	2	12/28/2000	<	2
316	12/25/2000		2	12/29/2000	<	2
317	12/26/2000	<	2	1/2/2001	<	2
318	12/27/2000	<	2	1/3/2001		2
319	12/28/2000		8	1/4/2001		2
320	12/29/2000	<	2	1/5/2001		2
321	1/2/2001		13	1/6/2001		7
322	1/3/2001		2	1/7/2001		2
323	1/4/2001	<	2	1/8/2001	<	2
324	1/5/2001		11	1/9/2001		7
325	1/6/2001		7	1/10/2001		4
326	1/7/2001	<	2	1/11/2001		4
327	1/8/2001	<	2	1/12/2001		13
328	1/9/2001		13	1/15/2001		13
329	1/10/2001		4	1/16/2001		4
330	1/11/2001		13	1/17/2001		4
331	1/12/2001		23	1/21/2001		2
332	1/15/2001		2	1/22/2001	<	2
333	1/16/2001		4	1/23/2001	<	2
334	1/17/2001	<	2	1/24/2001	<	2
335	1/21/2001	<	2	1/28/2001	<	2
336	1/22/2001	<	2	1/29/2001	<	2
337	1/23/2001	<	2	1/30/2001	<	2
338	1/24/2001		2	1/31/2001	<	2
339	1/28/2001	<	2	2/1/2001	<	2
340	1/29/2001	<	2	2/2/2001	<	2
341	1/30/2001		4	2/5/2001	<	2
342	1/31/2001	<	2	2/6/2001	<	2
343	2/1/2001		2	2/7/2001	<	2
344	2/2/2001	<	2	2/8/2001	<	2
345	2/5/2001	<	2	2/9/2001		2
346	2/6/2001	<	2	2/12/2001		2
347	2/7/2001		2	2/13/2001		4
348	2/8/2001		2	2/14/2001		4
349	2/9/2001		4	2/15/2001		4
350	2/12/2001		22	2/19/2001		4
351	2/13/2001		4	2/20/2001		2
352	2/14/2001	<	2	2/21/2001		2
353	2/15/2001		8	2/22/2001		2
354	2/19/2001		2	2/23/2001		2
355	2/20/2001		2	3/1/2001		2
356	2/21/2001	<	2	3/2/2001		2
357	2/22/2001		30	3/4/2001		2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
358	2/23/2001		4	3/5/2001		2
359	3/1/2001		2	3/6/2001		2
360	3/2/2001		2	3/7/2001		2
361	3/4/2001		2	3/10/2001		2
362	3/5/2001		2	3/11/2001		2
363	3/6/2001		2	3/12/2001		2
364	3/7/2001		2	3/13/2001		2
365	3/10/2001		2	3/14/2001		2
366	3/11/2001		2	3/15/2001		2
367	3/12/2001		2	3/16/2001		2
368	3/13/2001		2	3/20/2001		2
369	3/14/2001		2	3/21/2001		2
370	3/15/2001		2	3/22/2001		2
371	3/16/2001		2	3/23/2001		2
372	3/20/2001		2	3/26/2001		2
373	3/21/2001		2	3/27/2001		2
374	3/22/2001		2	3/28/2001		2
375	3/23/2001		2	3/29/2001		2
376	3/26/2001		4	3/30/2001		4
377	3/27/2001		2	3/31/2001		4
378	3/28/2001		2	4/2/2001		8
379	3/29/2001		8	4/3/2001		17
380	3/30/2001		17	4/4/2001		17
381	3/31/2001		4	4/5/2001		30
382	4/2/2001		30	4/9/2001		30
383	4/3/2001		30	4/10/2001		30
384	4/4/2001		13	4/11/2001		13
385	4/5/2001		30	4/12/2001		23
386	4/9/2001		110	4/13/2001		13
387	4/10/2001		7	4/14/2001		13
388	4/11/2001		13	4/16/2001		13
389	4/12/2001		23	4/17/2001		13
390	4/13/2001		13	4/18/2001		11
391	4/14/2001	<	2	4/19/2001		11
392	4/16/2001		70	4/20/2001		30
393	4/17/2001		11	4/21/2001		11
394	4/18/2001	<	2	4/22/2001		11
395	4/19/2001		30	4/23/2001		11
396	4/20/2001		80	4/24/2001		11
397	4/21/2001		11	4/25/2001		11
398	4/22/2001	<	2	4/26/2001		2
399	4/23/2001		2	4/27/2001		13
400	4/24/2001		17	4/28/2001		17
401	4/25/2001		13	4/29/2001		13
402	4/26/2001		2	4/30/2001		22
403	4/27/2001		22	11/8/2001		22
404	4/28/2001		23	11/9/2001		9
405	4/29/2001		9	11/10/2001		9
406	4/30/2001		50	11/11/2001		8
407	11/8/2001		4	11/12/2001		8
408	11/9/2001	<	2	11/13/2001		8

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
409	11/10/2001		30	11/14/2001		8
410	11/11/2001		8	11/15/2001		8
411	11/12/2001		23	11/16/2001		8
412	11/13/2001		2	11/19/2001		8
413	11/14/2001		8	11/20/2001		8
414	11/15/2001	<	2	11/26/2001		4
415	11/16/2001		13	11/27/2001		4
416	11/19/2001		8	11/28/2001		2
417	11/20/2001	<	2	11/29/2001		2
418	11/26/2001		4	11/30/2001		4
419	11/27/2001	<	2	12/3/2001		2
420	11/28/2001		2	12/4/2001		2
421	11/29/2001		30	12/5/2001		2
422	11/30/2001		8	12/6/2001	<	2
423	12/3/2001	<	2	12/9/2001	<	2
424	12/4/2001	<	2	12/10/2001	<	2
425	12/5/2001		2	12/11/2001	<	2
426	12/6/2001	<	2	12/12/2001	<	2
427	12/9/2001	<	2	12/14/2001	<	2
428	12/10/2001	<	2	12/15/2001	<	2
429	12/11/2001	<	2	12/17/2001	<	2
430	12/12/2001	<	2	12/18/2001	<	2
431	12/14/2001	<	2	12/19/2001	<	2
432	12/15/2001	<	2	12/20/2001	<	2
433	12/17/2001	<	2	12/21/2001	<	2
434	12/18/2001	<	2	12/24/2001	<	2
435	12/19/2001	<	2	12/27/2001	<	2
436	12/20/2001		2	12/28/2001	<	2
437	12/21/2001	<	2	12/31/2001	<	2
438	12/24/2001	<	2	1/1/2002		2
439	12/27/2001	<	2	1/2/2002		2
440	12/28/2001		2	1/3/2002		4
441	12/31/2001		4	1/4/2002		4
442	1/1/2002		2	1/7/2002		2
443	1/2/2002		8	1/8/2002		2
444	1/3/2002		4	1/9/2002		2
445	1/4/2002		2	1/10/2002	<	2
446	1/7/2002	<	2	1/13/2002	<	2
447	1/8/2002		2	1/14/2002	<	2
448	1/9/2002	<	2	1/15/2002	<	2
449	1/10/2002	<	2	1/16/2002	<	2
450	1/13/2002	<	2	1/17/2002	<	2
451	1/14/2002	<	2	1/18/2002	<	2
452	1/15/2002	<	2	1/21/2002	<	2
453	1/16/2002	<	2	1/22/2002	<	2
454	1/17/2002	<	2	1/23/2002	<	2
455	1/18/2002	<	2	1/24/2002	<	2
456	1/21/2002	<	2	1/27/2002	<	2
457	1/22/2002	<	2	1/28/2002	<	2
458	1/23/2002	<	2	1/29/2002	<	2
459	1/24/2002	<	2	1/30/2002	<	2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
460	1/27/2002	<	2	2/1/2002	<	2
461	1/28/2002	<	2	2/4/2002	<	2
462	1/29/2002	<	2	2/5/2002	<	2
463	1/30/2002	<	2	2/6/2002	<	2
464	2/1/2002	<	2	2/7/2002	<	2
465	2/4/2002	<	2	2/8/2002	<	2
466	2/5/2002	<	2	2/11/2002	<	2
467	2/6/2002	<	2	2/12/2002	<	2
468	2/7/2002	<	2	2/13/2002	<	2
469	2/8/2002	<	2	2/14/2002	<	2
470	2/11/2002	<	2	2/15/2002	<	2
471	2/12/2002	<	2	2/18/2002	<	2
472	2/13/2002	<	2	2/19/2002	<	2
473	2/14/2002	<	2	2/20/2002	<	2
474	2/15/2002	<	2	2/21/2002	<	2
475	2/18/2002	<	2	2/22/2002	<	2
476	2/19/2002	<	2	2/28/2002	<	2
477	2/20/2002	<	2	4/1/2002		4
478	2/21/2002	<	2	4/2/2002		4
479	2/22/2002	<	2	4/3/2002		4
480	2/28/2002	<	2	4/4/2002		13
481	4/1/2002		2	4/5/2002		13
482	4/2/2002		13	4/8/2002		17
483	4/3/2002		50	4/9/2002		17
484	4/4/2002		23	4/10/2002		13
485	4/5/2002		13	4/11/2002		13
486	4/8/2002		17	4/12/2002		9
487	4/9/2002		9	4/15/2002		9
488	4/10/2002		8	4/16/2002		14
489	4/11/2002		23	4/17/2002		14
490	4/12/2002		8	4/29/2002		14
491	4/15/2002		14	4/30/2002		14
492	4/16/2002		14	11/1/2002		14
493	4/17/2002		30	11/4/2002		11
494	4/29/2002		23	11/5/2002		8
495	4/30/2002		11	11/6/2002		8
496	11/1/2002		4	11/7/2002		8
497	11/4/2002		2	11/8/2002		30
498	11/5/2002		8	11/9/2002		30
499	11/6/2002		30	11/10/2002		30
500	11/7/2002		1600	11/11/2002		13
501	11/8/2002		70	11/12/2002		13
502	11/9/2002		13	11/13/2002		13
503	11/10/2002		13	11/14/2002		2
504	11/11/2002		2	11/15/2002		2
505	11/12/2002		50	11/18/2002	<	2
506	11/13/2002	<	2	11/19/2002	<	2
507	11/14/2002		2	11/20/2002		2
508	11/15/2002	<	2	11/21/2002	<	2
509	11/18/2002	<	2	11/22/2002	<	2
510	11/19/2002		7	11/25/2002		2

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
511	11/20/2002		2	11/26/2002		2
512	11/21/2002	<	2	11/27/2002		4
513	11/22/2002	<	2	11/28/2002		4
514	11/25/2002		17	12/3/2002		4
515	11/26/2002		17	12/4/2002		2
516	11/27/2002		4	12/5/2002		2
517	11/28/2002		2	12/6/2002	<	2
518	12/3/2002		2	12/9/2002	<	2
519	12/4/2002	<	2	12/10/2002	<	2
520	12/5/2002	<	2	12/11/2002	<	2
521	12/6/2002	<	2	12/12/2002	<	2
522	12/9/2002	<	2	12/13/2002	<	2
523	12/10/2002	<	2	12/16/2002	<	2
524	12/11/2002		2	12/17/2002	<	2
525	12/12/2002	<	2	12/18/2002	<	2
526	12/13/2002		4	12/19/2002	<	2
527	12/16/2002	<	2	12/20/2002	<	2
528	12/17/2002	<	2	12/23/2002	<	2
529	12/18/2002	<	2	12/24/2002	<	2
530	12/19/2002	<	2	12/25/2002	<	2
531	12/20/2002	<	2	12/26/2002	<	2
532	12/23/2002	<	2	12/27/2002	<	2
533	12/24/2002	<	2	12/30/2002	<	2
534	12/25/2002		2	12/31/2002	<	2
535	12/26/2002	<	2	1/1/2003	<	2
536	12/27/2002	<	2	1/2/2003	<	2
537	12/30/2002	<	2	1/3/2003	<	2
538	12/31/2002	<	2	1/6/2003	<	2
539	1/1/2003	<	2	1/7/2003	<	2
540	1/2/2003	<	2	1/8/2003	<	2
541	1/3/2003		2	1/9/2003	<	2
542	1/6/2003	<	2	1/10/2003	<	2
543	1/7/2003	<	2	1/13/2003	<	2
544	1/8/2003	<	2	1/14/2003	<	2
545	1/9/2003	<	2	1/15/2003	<	2
546	1/10/2003	<	2	1/16/2003	<	2
547	1/13/2003	<	2	1/17/2003	<	2
548	1/14/2003	<	2	1/20/2003	<	2
549	1/15/2003		4	1/21/2003		2
550	1/16/2003		2	1/22/2003	<	2
551	1/17/2003	<	2	1/23/2003	<	2
552	1/20/2003	<	2	1/24/2003	<	2
553	1/21/2003		2	1/27/2003	<	2
554	1/22/2003	<	2	1/28/2003	<	2
555	1/23/2003		2	1/29/2003	<	2
556	1/24/2003	<	2	1/30/2003	<	2
557	1/27/2003	<	2	2/3/2003	<	2
558	1/28/2003	<	2	2/4/2003	<	2
559	1/29/2003	<	2	2/5/2003		2
560	1/30/2003	<	2	2/6/2003		2
561	2/3/2003		8	2/7/2003		2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
562	2/4/2003		2	2/10/2003		2
563	2/5/2003		4	2/11/2003	<	2
564	2/6/2003	<	2	2/12/2003	<	2
565	2/7/2003	<	2	2/13/2003	<	2
566	2/10/2003		2	2/14/2003		2
567	2/11/2003	<	2	2/17/2003	<	2
568	2/12/2003		2	2/18/2003	<	2
569	2/13/2003	<	2	2/19/2003	<	2
570	2/14/2003		2	2/20/2003	<	2
571	2/17/2003	<	2	2/21/2003	<	2
572	2/18/2003	<	2	2/24/2003	<	2
573	2/19/2003		13	2/25/2003		13
574	2/20/2003	<	2	2/26/2003		4
575	2/21/2003	<	2	2/27/2003		14
576	2/24/2003		34	2/28/2003		14
577	2/25/2003		14	3/3/2003		11
578	2/26/2003		4	3/4/2003		11
579	2/27/2003		30	3/5/2003		30
580	2/28/2003		11	3/6/2003		11
581	3/3/2003		4	3/10/2003		4
582	3/4/2003		220	3/11/2003		2
583	3/5/2003		50	3/12/2003		2
584	3/6/2003		2	3/13/2003		2
585	3/10/2003		2	3/14/2003		4
586	3/11/2003		2	3/17/2003		4
587	3/12/2003		17	3/18/2003		4
588	3/13/2003		4	3/19/2003		4
589	3/14/2003		11	3/20/2003		2
590	3/17/2003		2	3/21/2003		2
591	3/18/2003		4	3/24/2003		2
592	3/19/2003		2	3/25/2003		2
593	3/20/2003		2	3/26/2003		2
594	3/21/2003		2	3/27/2003		2
595	3/24/2003	<	2	3/28/2003	<	2
596	3/25/2003	<	2	3/31/2003	<	2
597	3/26/2003		4	4/1/2003		2
598	3/27/2003		2	4/2/2003		2
599	3/28/2003	<	2	4/3/2003		2
600	3/31/2003	<	2	4/4/2003		2
601	4/1/2003		4	4/9/2003		4
602	4/2/2003		4	4/10/2003		2
603	4/3/2003		2	4/11/2003		2
604	4/4/2003		2	4/14/2003		2
605	4/9/2003		4	4/15/2003		2
606	4/10/2003	<	2	4/16/2003		2
607	4/11/2003		17	4/17/2003		2
608	4/14/2003		2	4/18/2003		2
609	4/15/2003		2	4/21/2003		2
610	4/16/2003		2	4/22/2003		13
611	4/17/2003		2	4/23/2003		13
612	4/18/2003		13	4/24/2003		80

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
613	4/21/2003		13	4/25/2003		80
614	4/22/2003		80	4/26/2003		170
615	4/23/2003		80	4/28/2003		240
616	4/24/2003		240	4/29/2003		240
617	4/25/2003		1600	4/30/2003		170
618	4/26/2003		170	5/7/2003		50
619	4/28/2003		300	5/8/2003		22
620	4/29/2003		50	5/9/2003		21
621	4/30/2003		17	5/10/2003		17
622	5/7/2003		22	5/11/2003		11
623	5/8/2003		21	5/12/2003		11
624	5/9/2003		4	5/13/2003		6
625	5/10/2003		2	5/14/2003		11
626	5/11/2003		11	5/15/2003		14
627	5/12/2003		240	5/17/2003		17
628	5/13/2003		6	5/18/2003		17
629	5/14/2003		17	5/19/2003		50
630	5/15/2003		14	5/20/2003		80
631	5/17/2003		1600	5/21/2003		110
632	5/18/2003		110	5/22/2003		80
633	5/19/2003		50	11/4/2003		50
634	5/20/2003		80	11/5/2003		30
635	5/21/2003		130	11/6/2003		23
636	5/22/2003		30	11/7/2003		8
637	11/4/2003		4	11/10/2003		8
638	11/5/2003		8	11/11/2003		8
639	11/6/2003		23	11/12/2003		8
640	11/7/2003		4	11/13/2003		4
641	11/10/2003		13	11/14/2003		8
642	11/11/2003		8	11/17/2003		8
643	11/12/2003		4	11/18/2003		4
644	11/13/2003		2	11/19/2003		13
645	11/14/2003		13	11/20/2003		13
646	11/17/2003		30	11/21/2003		2
647	11/18/2003		2	11/24/2003		2
648	11/19/2003		50	11/25/2003		2
649	11/20/2003		2	11/26/2003		2
650	11/21/2003		2	11/27/2003		2
651	11/24/2003		4	11/28/2003		4
652	11/25/2003		2	12/1/2003		4
653	11/26/2003	<	2	12/2/2003		22
654	11/27/2003		23	12/3/2003		22
655	11/28/2003		23	12/4/2003		17
656	12/1/2003		4	12/5/2003		4
657	12/2/2003		22	12/10/2003		2
658	12/3/2003		2	12/11/2003		2
659	12/4/2003		17	12/12/2003		4
660	12/5/2003		2	12/15/2003		2
661	12/10/2003		2	12/16/2003		4
662	12/11/2003		4	12/17/2003		4
663	12/12/2003		4	12/18/2003		2

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
664	12/15/2003	<	2	12/19/2003	<	2
665	12/16/2003		4	12/22/2003	<	2
666	12/17/2003		2	12/23/2003	<	2
667	12/18/2003	<	2	12/24/2003	<	2
668	12/19/2003	<	2	12/25/2003	<	2
669	12/22/2003	<	2	12/26/2003	<	2
670	12/23/2003		2	12/29/2003		2
671	12/24/2003	<	2	12/30/2003	<	2
672	12/25/2003		2	12/31/2003	<	2
673	12/26/2003	<	2	1/1/2004	<	2
674	12/29/2003		2	1/2/2004	<	2
675	12/30/2003	<	2	1/5/2004	<	2
676	12/31/2003	<	2	1/6/2004	<	2
677	1/1/2004		2	1/7/2004	<	2
678	1/2/2004	<	2	1/8/2004	<	2
679	1/5/2004	<	2	1/9/2004	<	2
680	1/6/2004	<	2	1/12/2004	<	2
681	1/7/2004	<	2	1/13/2004	<	2
682	1/8/2004	<	2	1/14/2004	<	2
683	1/9/2004	<	2	1/15/2004	<	2
684	1/12/2004	<	2	1/16/2004	<	2
685	1/13/2004	<	2	1/21/2004	<	2
686	1/14/2004	<	2	1/22/2004	<	2
687	1/15/2004	<	2	1/23/2004		2
688	1/16/2004		2	1/26/2004		2
689	1/21/2004	<	2	1/27/2004		2
690	1/22/2004		2	1/28/2004		2
691	1/23/2004		2	1/29/2004		2
692	1/26/2004		2	1/30/2004		2
693	1/27/2004		2	2/2/2004		2
694	1/28/2004	<	2	2/3/2004	<	2
695	1/29/2004		2	2/4/2004	<	2
696	1/30/2004		7	2/5/2004	<	2
697	2/2/2004	<	2	2/6/2004	<	2
698	2/3/2004	<	2	2/9/2004	<	2
699	2/4/2004	<	2	2/10/2004	<	2
700	2/5/2004	<	2	2/11/2004	<	2
701	2/6/2004	<	2	2/12/2004	<	2
702	2/9/2004	<	2	2/13/2004	<	2
703	2/10/2004	<	2	2/18/2004	<	2
704	2/11/2004	<	2	2/19/2004		4
705	2/12/2004		4	2/20/2004		4
706	2/13/2004		8	2/23/2004		2
707	2/18/2004	<	2	2/24/2004		2
708	2/19/2004		4	2/25/2004		2
709	2/20/2004		2	2/26/2004	<	2
710	2/23/2004	<	2	2/27/2004	<	2
711	2/24/2004		2	3/1/2004	<	2
712	2/25/2004	<	2	3/2/2004	<	2
713	2/26/2004	<	2	3/3/2004	<	2
714	2/27/2004	<	2	3/4/2004	<	2

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
715	3/1/2004		2	3/5/2004	<	2
716	3/2/2004		2	3/8/2004	<	2
717	3/3/2004	<	2	3/9/2004	<	2
718	3/4/2004	<	2	3/10/2004		4
719	3/5/2004	<	2	3/12/2004		11
720	3/8/2004		11	3/17/2004		11
721	3/9/2004		23	3/18/2004		4
722	3/10/2004		4	3/19/2004		4
723	3/12/2004		300	3/22/2004		2
724	3/17/2004	<	2	3/23/2004	<	2
725	3/18/2004		2	3/24/2004	<	2
726	3/19/2004		4	3/25/2004	<	2
727	3/22/2004	<	2	3/26/2004	<	2
728	3/23/2004	<	2	3/29/2004	<	2
729	3/24/2004	<	2	3/30/2004	<	2
730	3/25/2004	<	2	3/31/2004	<	2
731	3/26/2004		2	4/1/2004		2
732	3/29/2004		2	4/2/2004		2
733	3/30/2004	<	2	4/5/2004		4
734	3/31/2004	<	2	4/6/2004		8
735	4/1/2004		8	4/7/2004		8
736	4/2/2004		11	4/8/2004		11
737	4/5/2004		4	4/9/2004		13
738	4/6/2004		13	4/12/2004		30
739	4/7/2004		4	4/13/2004		80
740	4/8/2004		30	4/14/2004		80
741	4/9/2004		80	4/15/2004		80
742	4/12/2004		900	4/16/2004		23
743	4/13/2004		80	4/19/2004		23
744	4/14/2004		9	4/20/2004		23
745	4/15/2004		23	10/26/2004		23
746	4/16/2004		17	10/27/2004		17
747	4/19/2004		70	10/28/2004		4
748	4/20/2004		30	10/29/2004		2
749	10/26/2004	<	2	10/30/2004	<	2
750	10/27/2004	<	2	11/1/2004	<	2
751	10/28/2004		4	11/2/2004		2
752	10/29/2004		2	11/3/2004		2
753	10/30/2004	<	2	11/4/2004	<	2
754	11/1/2004	<	2	11/5/2004		2
755	11/2/2004		2	11/8/2004		7
756	11/3/2004		9	11/9/2004		7
757	11/4/2004	<	2	11/10/2004		6
758	11/5/2004		7	11/11/2004		6
759	11/8/2004		17	11/12/2004		4
760	11/9/2004		4	11/15/2004		4
761	11/10/2004		6	11/16/2004		6
762	11/11/2004	<	2	11/17/2004		22
763	11/12/2004		2	11/18/2004		30
764	11/15/2004		22	11/19/2004		30
765	11/16/2004		50	11/25/2004		30

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
766	11/17/2004		33	11/26/2004		4
767	11/18/2004		30	11/29/2004	<	2
768	11/19/2004		4	11/30/2004	<	2
769	11/25/2004	<	2	12/1/2004	<	2
770	11/26/2004	<	2	12/2/2004	<	2
771	11/29/2004	<	2	12/3/2004	<	2
772	11/30/2004	<	2	12/6/2004	<	2
773	12/1/2004		2	12/7/2004	<	2
774	12/2/2004	<	2	12/8/2004	<	2
775	12/3/2004	<	2	12/9/2004	<	2
776	12/6/2004	<	2	12/10/2004	<	2
777	12/7/2004	<	2	12/13/2004	<	2
778	12/8/2004	<	2	12/14/2004	<	2
779	12/9/2004	<	2	12/15/2004	<	2
780	12/10/2004	<	2	12/16/2004	<	2
781	12/13/2004	<	2	12/17/2004	<	2
782	12/14/2004	<	2	12/20/2004	<	2
783	12/15/2004	<	2	12/21/2004	<	2
784	12/16/2004	<	2	12/22/2004	<	2
785	12/17/2004		8	12/23/2004	<	2
786	12/20/2004	<	2	12/24/2004	<	2
787	12/21/2004	<	2	12/27/2004	<	2
788	12/22/2004		2	12/28/2004	<	2
789	12/23/2004	<	2	12/29/2004	<	2
790	12/24/2004	<	2	12/30/2004	<	2
791	12/27/2004	<	2	12/31/2004	<	2
792	12/28/2004	<	2	1/3/2005	<	2
793	12/29/2004	<	2	1/4/2005	<	2
794	12/30/2004		2	1/5/2005	<	2
795	12/31/2004	<	2	1/6/2005	<	2
796	1/3/2005	<	2	1/7/2005	<	2
797	1/4/2005	<	2	1/10/2005	<	2
798	1/5/2005	<	2	1/11/2005	<	2
799	1/6/2005	<	2	1/12/2005	<	2
800	1/7/2005	<	2	1/13/2005	<	2
801	1/10/2005	<	2	1/14/2005	<	2
802	1/11/2005	<	2	1/17/2005	<	2
803	1/12/2005	<	2	1/18/2005	<	2
804	1/13/2005	<	2	1/19/2005	<	2
805	1/14/2005	<	2	1/20/2005	<	2
806	1/17/2005	<	2	1/21/2005	<	2
807	1/18/2005	<	2	1/24/2005	<	2
808	1/19/2005	<	2	1/25/2005	<	2
809	1/20/2005	<	2	1/26/2005	<	2
810	1/21/2005	<	2	1/27/2005	<	2
811	1/24/2005	<	2	1/28/2005	<	2
812	1/25/2005	<	2	1/31/2005	<	2
813	1/26/2005	<	2	2/1/2005	<	2
814	1/27/2005	<	2	2/2/2005	<	2
815	1/28/2005	<	2	2/3/2005	<	2
816	1/31/2005	<	2	2/4/2005	<	2

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Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
817	2/1/2005	<	2	2/7/2005	<	2
818	2/2/2005	<	2	2/8/2005	<	2
819	2/3/2005	<	2	2/9/2005	<	2
820	2/4/2005	<	2	2/10/2005	<	2
821	2/7/2005	<	2	2/11/2005	<	2
822	2/8/2005	<	2	2/14/2005	<	2
823	2/9/2005	<	2	2/15/2005	<	2
824	2/10/2005		2	2/16/2005		2
825	2/11/2005	<	2	2/17/2005		4
826	2/14/2005	<	2	2/18/2005		4
827	2/15/2005		4	2/21/2005		4
828	2/16/2005		23	2/22/2005		4
829	2/17/2005		50	2/23/2005	<	2
830	2/18/2005		4	2/24/2005	<	2
831	2/21/2005	<	2	2/25/2005	<	2
832	2/22/2005	<	2	2/28/2005	<	2
833	2/23/2005	<	2	3/1/2005	<	2
834	2/24/2005	<	2	3/2/2005	<	2
835	2/25/2005	<	2	3/3/2005	<	2
836	2/28/2005	<	2	3/4/2005	<	2
837	3/1/2005	<	2	3/7/2005	<	2
838	3/2/2005	<	2	3/8/2005	<	2
839	3/3/2005	<	2	3/9/2005		2
840	3/4/2005	<	2	3/10/2005		2
841	3/7/2005		2	3/11/2005		2
842	3/8/2005		2	3/14/2005		2
843	3/9/2005		2	3/15/2005	<	2
844	3/10/2005	<	2	3/16/2005	<	2
845	3/11/2005	<	2	3/17/2005	<	2
846	3/14/2005		2	3/18/2005	<	2
847	3/15/2005	<	2	3/21/2005	<	2
848	3/16/2005	<	2	3/22/2005	<	2
849	3/17/2005	<	2	3/23/2005	<	2
850	3/18/2005	<	2	3/24/2005	<	2
851	3/21/2005	<	2	3/25/2005	<	2
852	3/22/2005		500	3/28/2005	<	2
853	3/23/2005	<	2	3/29/2005	<	2
854	3/24/2005	<	2	3/30/2005	<	2
855	3/25/2005	<	2	3/31/2005	<	2
856	3/28/2005	<	2	4/13/2005	<	2
857	3/29/2005	<	2	4/14/2005	<	2
858	3/30/2005	<	2	4/15/2005	<	2
859	3/31/2005	<	2	4/18/2005	<	2
860	4/13/2005		13	4/19/2005		2
861	4/14/2005		2	4/20/2005		2
862	4/15/2005	<	2	4/21/2005		2
863	4/18/2005	<	2	4/22/2005		8
864	4/19/2005		2	4/25/2005		8
865	4/20/2005		8	4/26/2005		13
866	4/21/2005		13	4/27/2005		13
867	4/22/2005		50	4/28/2005		4

Effluent Daily Maximum				5-Sample Moving Median		
No.	Date	Qualifier	Value	Date	Qualifier	Value
868	4/25/2005	<	2	4/29/2005	<	2
869	4/26/2005		50	5/2/2005		4
870	4/27/2005	<	2	5/3/2005	<	2
871	4/28/2005		4	5/4/2005	<	2
872	4/29/2005	<	2	5/5/2005	<	2
873	5/2/2005		11	5/12/2005	<	2
874	5/3/2005	<	2	5/13/2005	<	2
875	5/4/2005	<	2	5/14/2005	<	2
876	5/5/2005	<	2	5/15/2005	<	2
877	5/12/2005	<	2	5/16/2005	<	2
878	5/13/2005	<	2	5/17/2005	<	2
879	5/14/2005	<	2	5/18/2005	<	2
880	5/15/2005	<	2	5/19/2005	<	2
881	5/16/2005	<	2	5/20/2005	<	2
882	5/17/2005	<	2	5/21/2005	<	2
883	5/18/2005	<	2	5/22/2005		7
884	5/19/2005		8	5/23/2005		7
885	5/20/2005	<	2	5/24/2005		7
886	5/21/2005		7	5/25/2005		7
887	5/22/2005		14	5/26/2005		14
888	5/23/2005		6	5/27/2005		6
889	5/24/2005		14	5/28/2005		13
890	5/25/2005		4	5/29/2005		7
891	5/26/2005		25	5/30/2005		13
892	5/27/2005		2			
893	5/28/2005		13			
894	5/29/2005		7			
895	5/30/2005		17			

Summary Statistics					
		Daily Maximum		5-sample median	
n		895			891
Minimum		2			2
Median		2			2
Average		20			7.296
Maximum		1600			240

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

Attachment H
Discharger's Feasibility Analysis

City of Petaluma Feasibility Study for NPDES Permit

August 15, 2005

I. INTRODUCTION

This study of the feasibility of achieving compliance with proposed final effluent limits for copper, mercury, and cyanide is being provided in response to the water quality-based effluent limits that are proposed in the August 9, 2005 Administrative Draft Order for the City of Petaluma's (City) NPDES Permit (Administrative Draft).

II. BACKGROUND

Basis for Feasibility Studies

The requirement for feasibility studies as a way to document the need for interim effluent limits was first suggested on May 3, 2001, and further defined in a May 11, 2001, meeting between representatives of Bay area dischargers, the RWQCB, the U. S. Environmental Protection Agency (USEPA), and the State Water Resources Control Board (SWRCB). Five Bay Area dischargers submitted feasibility studies to the RWQCB in May 2001 and had their permits adopted in June 2001, with effluent limits based on those studies.

There are two bases for the feasibility analysis: 1) the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (known as the SIP - March 2000) which establishes statewide policy for NPDES permitting, and 2) the RWQCB's Basin Plan, 1995. The SIP provides for the situation where an existing NPDES discharger cannot immediately comply with an effluent limitation derived from a California Toxics Rule (CTR) criterion. The SIP allows for the adoption of interim effluent limits and a schedule to achieve compliance with a water quality-based effluent limit in such cases. To qualify for interim limits and a compliance schedule, the discharger must demonstrate that it is infeasible to achieve immediate compliance with the CTR-based limits.

The term "infeasible" is defined in the SIP as "not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The SIP requires that the following information be submitted to the RWQCB to support a finding of infeasibility:

- Documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
- Documentation of source control and/or pollution minimization efforts currently underway or completed;
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment; and

- A demonstration that the proposed schedule is as short as practicable.

The SIP requires that interim numeric effluent limits be based on (a) current treatment facility performance or (b) limits in the existing permit, whichever is more stringent.

The SIP also requires that compliance schedules be limited to specific time periods. For constituents not on the 303(d) list, the maximum length of the compliance schedule is five years from the date of permit issuance. For constituents on the 303(d) list (where a TMDL is required to be prepared), the maximum length of the compliance schedule is 20 years from the effective date of the SIP (March 2000). To secure the TMDL-based compliance schedule, the discharger must make commitments to support and expedite development of the associated TMDL.

In similar fashion, when a NPDES discharger cannot immediately comply with an effluent limitation from a Basin Plan criterion, the Basin Plan allows the RWQCB to consider the discharger's proposals for longer compliance schedules where the revised effluent limitation will not be immediately met. The Basin Plan justification for compliance schedules is essentially the same as the SIP procedure. Both procedures require implementation of pollution prevention measures to reduce constituent of concern (COC) loadings to the maximum extent practicable as soon as possible.

Feasibility Study for the City of Petaluma

It is the City's understanding that the City must demonstrate that it is infeasible to meet the final effluent limits for copper, mercury, and cyanide in order to be granted a compliance schedule and interim effluent limits in its NPDES permit. It is also the City's understanding that the feasibility studies already produced by other dischargers were sufficient to prove inability to comply with the proposed final water quality-based effluent limits. Hence, this analysis is generally based on those previous examples.

The RWQCB will determine if a compliance schedule and interim limits are appropriate, based on the discharger's submittal. If the RWQCB agrees that immediate compliance is infeasible, and that all the conditions are met, a compliance schedule and interim limit can be established on a constituent-by-constituent basis.

III. CONSTITUENTS TO BE EVALUATED

The City will have difficulty complying with the WQBELs contained in the Administrative Draft for the following COCs:

- Copper
- Mercury
- Cyanide

Consequently, these COCs are the subjects of this feasibility analysis.

IV. PROPOSED WATER QUALITY BASED EFFLUENT LIMITS AND CURRENT PLANT PERFORMANCE FOR CONSTITUENTS OF CONCERN

The RWQCB proposed final water quality-based effluent limits for the City in the Administrative Draft. The proposed final limits and the City's effluent quality are summarized in Table 1.

Effluent quality in Table 1 is based on data from sampling conducted between January 2000 and March 2004, the same time period used in the Administrative Draft.

Table 1. Final Effluent Limits and Effluent Quality

Con- stituent	Final Water Quality Based Effluent Limits (WQBELs) (ug/L)			Petaluma Effluent Quality (MEC ³) (ug/L)	Notes
	AMEL ¹	MDEL ²	Interim Limit		
Copper	3.3	5.2	4.9	6	Translator may apply
Mercury	0.012			0.021	AMEL may change to 0.021
Cyanide	0.5	1.0	14	10	

¹AMEL= Average Monthly Effluent Limit

²MDEL= Maximum Daily Effluent Limit

³MEC= Maximum Effluent Concentration observed in the dataset (1/00-3/04)

It is the City's understanding that the water quality-based effluent limits shown in Table 1 were calculated using procedures described in Section 1.4 of the SIP. All numerical analyses contained in this study rely on the data provided in the Permit Amendment Administrative Draft by the RWQCB.

FEASIBILITY ANALYSIS

As shown in Table 1, based upon current treatment plant performance as measured using plant effluent, the City is unlikely to be able to immediately comply with proposed final effluent limits for the three COCs. As a result of the City's inability to immediately comply with effluent limits, interim effluent limits and a compliance schedule to attempt to meet final limits should be granted in the NPDES permit.

Treatment plant performance and the City's pollution prevention program targeting each of the constituents of concern are discussed below.

Copper

City effluent characteristics for copper indicate that immediate compliance with the final effluent limits is unlikely. For the period of January 2000-March 2004, the effluent copper concentrations ranged from 1.7 ug/L to 6 ug/L (33 samples). The MEC of 13 ug/L would result in permit violations at the proposed dry weather AMEL of 3.3 ug/L.

and MDEL of 5.2 ug/L. Of the 33 samples, 16 or 50% exceeded the AMEL and one or 3% exceeded the MDEL. Therefore, interim effluent limits for copper and a compliance schedule to attempt to meet final copper limits should be granted.

Annual average influent copper levels ranged from 32 µg/L to 35 µg/L from 2000 to 2005. These low influent levels reflect the less corrosive nature of the City's water supply and may also be an indication that there are no significant copper dischargers in the service area. The City receives its water from the Sonoma County Water Agency which adjusts the pH of its water supply to reduce corrosivity. Through the City's pretreatment and pollution prevention program, the City oversees the activities of several potential copper dischargers. Four printers are under permit with two being zero discharge. There are 3 machine shops under permit with two being zero discharge. The City has a long standing Automotive Repair Facility Inspection Program and an Automotive and Machine Shop BMP program.

Mercury

For the period of January 2000-March 2004, the effluent mercury concentrations ranged from 0.0005 ug/L to 0.021 ug/L (33 samples). The MEC of 0.021 ug/L would result in permit violations at the proposed AMEL of 0.012 ug/L (or 0.021 µg/L if changed). Therefore, an interim effluent limit for mercury and a compliance schedule to attempt to meet final mercury limits should be granted.

Annual average influent mercury levels ranged from 0.17 µg/L to 0.44 µg/L from 2000 to 2005. The City has conducted mercury source identification in Penn Grove, an area identified as having high mercury levels in the collection system ****(is this correct?)****. It has recently incorporated mercury BMPs into its Industrial Pretreatment Permits. In addition, it has developed BMPs for Petaluma Valley Hospital and participates in the Hospital's Environmental Fair. The City has also distributed BMPs to dentists. It conducts household hazardous waste collection events for residents to turn in thermometers, fluorescent bulbs and mercury switches.

Cyanide

City effluent characteristics for cyanide indicate that immediate compliance with the final effluent limits is unlikely. Effluent cyanide concentrations during the September 2001 through April 2004 period range from 1.4 ug/L to 10 ug/L (33 samples). The MEC of 10 ug/L would result in permit violations at the proposed AMEL of 0.5 ug/L and MDEL of 1 ug/L. All the samples either exceed the AMEL or are below detection limits. Additionally, the SIP minimum level (ML) for cyanide is 5 ug/L. Four of the 33 samples exceed the ML. Therefore, interim effluent limits for cyanide and a compliance schedule to attempt to meet final cyanide limits should be granted.

As Finding No. 59 of the Administrative Draft notes: "Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix inferences. A body of evidence exists to show that cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF)."

The City has concerns about the occurrence of artifactual (false positive) cyanide as evidenced by effluent concentrations greater than influent concentrations. The City supports efforts to develop a site-specific objective for cyanide in the Bay, given that cyanide does not persist in the environment and that the current WQO was based on testing with East Coast species. A cyanide SSO for Puget Sound, Washington, using West Coast species has been approved by EPA Region X. The Discharger participates in a regional discharger-funded effort to conduct a study for development of site-specific objective. The cyanide study plan was submitted on October 29, 2001. A final report was submitted to the Board on June 29, 2003. The Board intends to include, in a subsequent permit revision, a final limit based on the study results.

A review of cyanide influent data shows that cyanide has rarely been detected in the influent and is rarely present at levels exceeding effluent levels. In 2004 and 2005, cyanide was not detected above the detection limit of 3 µg/L in the influent. Therefore, it is unlikely that there are cyanide sources to the City's influent. Instead, cyanide is most likely generated in the treatment process. Therefore, rather than pursuing pollution prevention which would not be effective for cyanide, the City will conduct a cyanide study as required by Provision 4 of the Administrative Draft.

General Pollution Prevention Activities

In addition to the COC specific activities described above, the City conducts a range of activities through its Pretreatment and Pollution Prevention Programs. The City's Pretreatment Program oversees seven Significant Industrial Users, nine Industrial Users, nine Commercial Users, nine Zero Dischargers and eight groundwater remediation sites. All users receive information regarding pollution prevention and waste management practices. In addition, the City conducts the following pollution prevention activities:

- Routine collection system monitoring to support source identification efforts;
- Food service Fats, Oil and Grease (FOG) Interceptor Maintenance Inspection program. In addition to this regular inspection program, BMP fact sheets are distributed to restaurants;
- Water conservation and Pollution Prevention booth at public events including the Sonoma Marin Fair and Petaluma Valley Hospital Environmental Fair;
- City Revitalization Program for the Theatre District providing oversight of groundwater remediation project;
- Community and Facility Recycling Program promoting recycling of paper, cardboard, glass, plastics, and metal;
- Water Education Program targeting water conservation; and
- Support of and participation in the Bay Area Pollution Prevention Group.

Summary

Based upon the above analysis, the City concludes that it is infeasible to meet the final effluent limitations proposed in the Draft Order for copper, mercury, and cyanide. Furthermore, it may remain infeasible within a five-year time schedule to meet these

limits. As described in above, however, the City will continue to conduct its current pollution prevention activities and work to implement planned programs for the future.

In addition, the City will implement the following actions targeting the COCs.

Constiuent	Action	Completion Date
Copper	Initiate regular inspections and distribution of BMP materials to the 75 automotive repair shops.	1 year after adoption of permit
Mercury	Initiate inspections of the dental facilities to assess BMP implementation.	2 years after adoption of permit
Cyanide	Conduct the cyanide SSO study as required by Provision 4 of the Draft Order.	3 years after adoption of permit

City of Petaluma
NPDES Permit No. CA 0037810
Order No. R2-2005-0058

Attachment I

**Executive Officer's Letter
New Requirements for Reporting of Sanitary Sewer Overflows
Dated November 15, 2004**



Terry Tamminen
Secretary for
Environmental
Protection

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
<http://www.waterboards.ca.gov/sanfranciscobay>



Arnold Schwarzenegger
Governor

File No. 1210.57 (AMP)

NOV 15 2004

TO: Sewer System Authorities (attached list)

SUBJECT: New Requirements for Reporting of Sanitary Sewer Overflows

This letter is to notify you, as a Sewer System Authority, that beginning December 1, 2004, there will be new requirements for reporting of sanitary sewer overflows (SSO) that apply to all Sewer System Authorities in this region. In summary, you are required to:

- 1) electronically report SSOs that occur within a set time frame to the Water Board, and
- 2) annually report all SSOs.

These reporting requirements are described in the attached Monitoring and Reporting Program Requirements. Failure to accurately report will subject you to monetary liabilities that may be imposed by the Water Board. The following provides some background and further details on the requirements and liabilities.

Background

This requirement is the result of a collaborative effort between the Bay Area Clean Water Agencies (BACWA) and the Water Board to reduce and prevent sanitary sewer overflows. Over the past year, BACWA and Water Board staff held numerous meetings and six workshops to develop the content of a comprehensive SSO program. This program is comprised of two components: 1) electronic reporting of SSOs; and, 2) development and implementation of Sanitary Sewer Management Plans (SSMPs). While the requirement for electronic SSO reporting begins December 1, 2004, the guidance document for SSMP preparation is still under development. We are also in the process of developing reporting requirements for activities related to development and implementation of SSMPs. These reporting requirements will be a part of the annual reports, and you will be notified of them at a later date. If you are interested in participating in finalizing the SSMP guidance or the reporting requirements, please contact Ann Powell of the Water Board.

Registration

The first step to electronic reporting is registration at: https://www.r2esmr.net/sso_login2.asp. Prior to reporting SSOs, you will need to go online and complete a "Collection System Questionnaire" to register your agency in the program. After registration, we will e-mail you a username and password. Each agency can register only once, and will be provided only one username and password. You may share this username and password with any authorized user within your agency who has responsibility for reporting SSOs. You do not need to register again if you have already registered as part of the pilot testing of this reporting system.

Preserving, enhancing, and restoring the San Francisco Bay Area's waters for over 50 years

Annual Reports

The first annual report is due March 15, 2006, and should cover 13 months from December 1, 2004, through December 31, 2005. Subsequent annual reports are due March 15th, and should contain information for the preceding 12-month calendar year. Please refer to the attached document, Sanitary Sewer Overflow Monitoring and Reporting Program Requirements for Sewer System Authorities, for detail on reporting SSO information in the annual report.

Applicability to NPDES Permitted Facilities

For Publicly Owned Treatment Works whose discharges are regulated in NPDES permits, and who also operate sanitary sewer systems, the reporting requirements for SSOs specified in your Permit's Self-Monitoring Program (SMP) are still in effect for SSOs that occur within the treatment plant facility boundaries. For SSOs that occur in the collection system upstream of the treatment plant, the SSO reporting requirements specified in this letter replace those in the SMP.

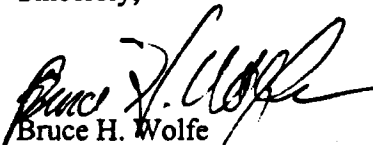
Basis for Requirement and Liabilities

Because SSOs are a threat to water quality, you should be aware that this letter establishes formal requirements for technical information pursuant to California Water Code Section 13267. Failure to respond, late response, or incomplete response may subject you to civil liability imposed by the Water Board to a maximum of \$1,000 per day. Any revisions of the request set forth must be confirmed in writing by Water Board staff.

Questions

If your agency needs assistance registering or with other aspects of electronic reporting, please contact Johnson Lam at jlam@waterboards.ca.gov or (510) 622-2373. For questions about program requirements or SSMPs, please contact Ann M. Powell at apowell@waterboards.ca.gov or (510) 622-2474.

Sincerely,


Bruce H. Wolfe
Executive Officer

Attachments:

- Sanitary Sewer Authorities Mailing List
- Sanitary Sewer Overflow Monitoring and Reporting Program Requirements for Sewer System Authorities

**San Francisco Bay Area
Sanitary Sewer Overflow Monitoring and Reporting Program
Requirements for Sewer System Authorities**

Sewer system authorities (Authorities) shall monitor and report sanitary sewer overflows (SSO) caused by a problem in or with sewer lines or laterals owned by the Authorities in accordance with the requirements specified in this Monitoring and Reporting Program.

I. SSO MONITORING REQUIREMENTS

When responding to an SSO event, the first two priorities are protection of public health and eliminating the SSO. If an SSO originating from an Authority's sewer system reaches surface water, Authorities shall conduct the following monitoring to determine the nature and impact of the SSO on the receiving water as soon as monitoring can safely occur without substantially impeding cleanup or other emergency measures:

1. Estimation of Spill Volume

Authorities shall record an estimate of the total volume of each SSO. The estimate can be made based on visual observations. See Attachment A for examples of various methods that can be used for estimating spill volume.

2. Visual Monitoring

Authorities shall visually monitor, when and where practical, the receiving water near the location where the SSO entered surface water for abnormal conditions, such as effects to aquatic life, abnormal color, etc. Photos may be used for documentation.

3. Water Quality Monitoring

When it is determined to be feasible and safe, Authorities shall collect and analyze samples of the receiving water for those SSOs that may imminently and substantially endanger human health and SSOs that cause fish kills. Samples taken in the receiving waters at appropriate locations, such as at the point of discharge, as well as up- and down-stream of the discharge point, shall be analyzed for ammonia, dissolved oxygen, and an indicator bacteria such as total coliform, fecal coliform, or enterococcus. The method of analysis for ammonia and dissolved oxygen may be a readily available, good quality test kit, suitable for field analysis.

Authorities may exercise their best judgment to determine if sampling is appropriate on a case-by-case basis. When reporting SSO data, Authorities should provide discussions on potential influence from other sources such as storm drains, streams, and other water bodies, which can be heavily impacted by normal runoff during both dry and wet weather conditions.

II. SSO REPORTING REQUIREMENTS

Authorities shall report all SSOs greater than 100 gallons to the Regional Water Quality Control Board, San Francisco Region (Water Board). Authorities shall keep internal records of SSOs less than 100 gallons such that information on the total number of SSOs can be included in the Annual Report as described in Section II.4., below. An SSO is defined as a spill, release, or unauthorized discharge of wastewater from a sanitary sewer system at any point upstream of a wastewater treatment facility that is caused by a problem in or with sewer system authorities' sewer lines including laterals owned by the authorities. For reporting purposes under this program, SSOs include:

- Overflows or releases of untreated or partially treated wastewater that reach waters of the State;
- Overflows or releases of untreated or partially treated wastewater that do not reach waters of the State; and
- Wastewater backups into buildings that are caused by blockages or high flow conditions in a sanitary sewer that are caused by a problem in an Authority's sewer line. Wastewater backups into buildings caused by a blockage or other malfunctions of a building lateral that is privately owned are not SSOs.

All SSOs must be reported within 10 business days of identification of the SSO by the Authority. More significant SSOs require immediate reporting to the Water Board and the Office of Emergency Services (OES) as shown in Figure 1 and described in Sections II.1. through II.4.

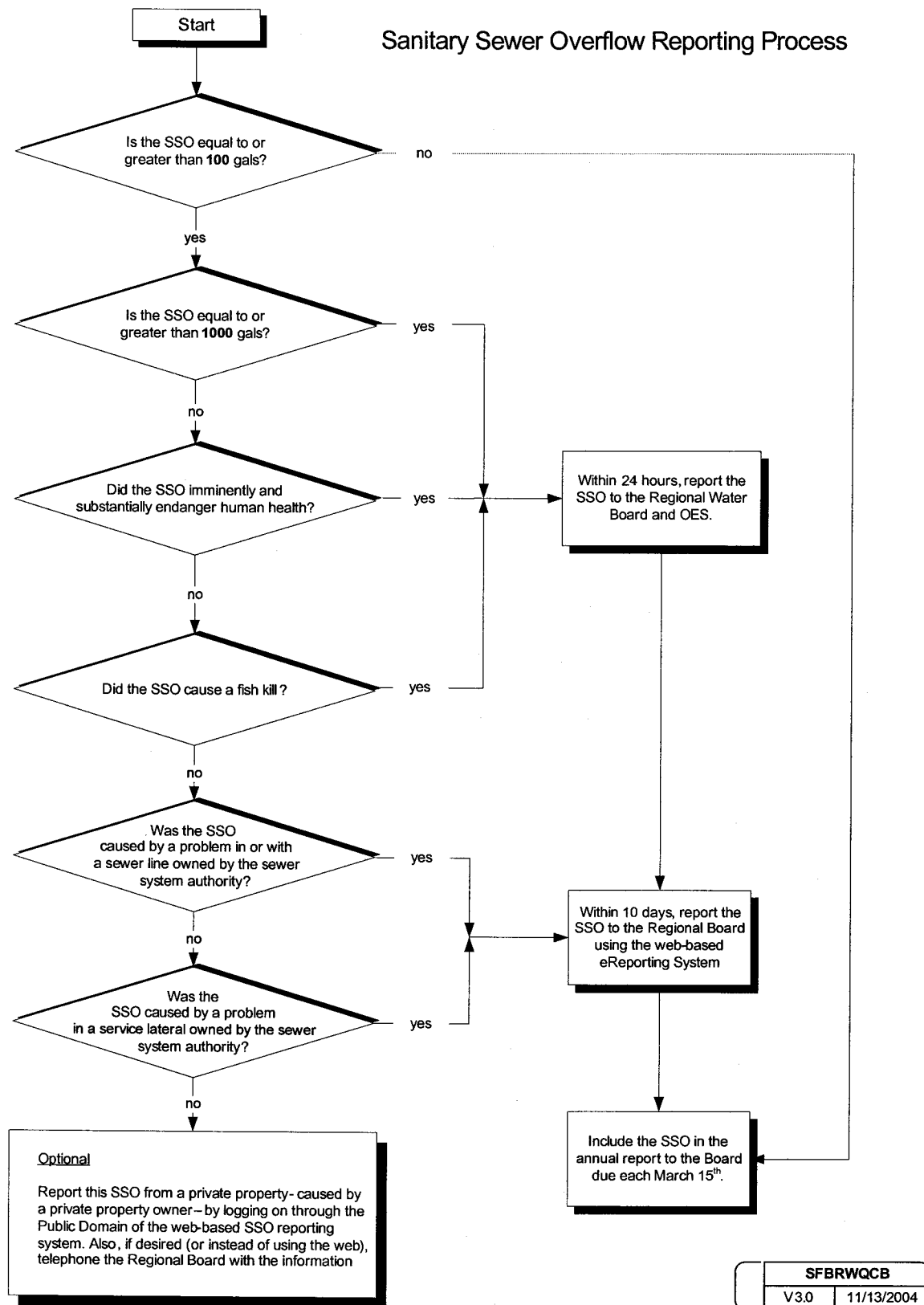


Figure 1. Flow Chart for Deciding How to Report an SSO

1. Immediate Reporting (24-Hour Reporting Requirement)

a. Immediate Reporting to the Water Board

Authorities shall immediately report to the Water Board within 24 hours of Authorities' field staff becoming aware of an SSO¹ that meets the following criteria:

- (i) Any SSO that is 1,000 gallons or more, or
- (ii) Any SSO that may imminently and substantially endanger human health, or
- (iii) Any SSO that causes fish kills.

Authorities are encouraged to meet the immediate (24-hour) reporting requirement using the web-based SSO Electronic Reporting System (SSO ERS). The web-based reporting system requires a shortened amount of information for the 24-hour reporting (if desired by the Authority), with the remaining information to be entered within 10 business days of identification of the SSO by the Authority.

However, if necessary due to time and/or web-access constraints, the Authority can satisfy the 24-hour reporting requirement using Water Board telephone (510.622.) or facsimile (510.622.2460). If a facsimile is used, the form in Attachment B shall be used for the faxed form.

In any event, the Authority must submit a complete ("Long-Form") report of the SSO using the SSO ERS within 10 business days of identification of the SSO. The SSO ERS is described in Section II.3. below.

b. Immediate Reporting to the Office of Emergency Services

Authorities shall also report all SSOs greater than 1,000 gallons by telephone only to OES²:

Office of Emergency Services
Phone (800) 825-7550

OES fax for follow-up only
Fax (916) 262-1677

¹ Refer to section 13271 (a)(1) of the Porter Cologne Act and Title 23, Division 3, Chapter 9.2, §2250 of the California Code of Regulations for legal authority.

² Refer to Section 13271 of the Porter Cologne Water Quality Control Act for legal authority.

c. Immediate notification to public

- (i) Authorities must notify the public of those SSOs, including SSOs that do not reach waters of the State, in areas where an SSO has a potential to imminently and substantially affect human health. The criteria for notification shall be developed and specified in Sewer System Management Plans (SSMPs) under Emergency Response Plans.
- (ii) Authorities shall post visible warning signs at the SSO location where there is public access and the SSO may imminently and substantially endanger human health.

2. Ten-Day Reporting

Authorities shall also report all other SSOs greater than 100 gallons within 10 business days of identification of SSOs by the Authorities.

3. SSO Electronic Reporting System (SSO ERS)

Authorities shall report all SSOs greater than 100 gallons through the Water Board's web-based SSO ERS at https://www.r2esmr.net/sso_login2.asp. Prior to reporting SSOs, a "Collection System Questionnaire" must be filled out online, in order to register your agency in the program. After registration, your agency will be issued a username and password. Only one username and password will be provided for each agency. This same username and password may be provided to any authorized user within the agency. If your agency needs assistance registering or obtaining a username and password, please contact Johnson Lam of the Regional Water Board, at Jlam@waterboards.ca.gov or (510) 622-2373.

Although not required, overflows less than 100 gallons may also be reported using the SSO ERS. The Authority may choose to do this because the SSO ERS is capable of generating summary reports that will satisfy annual reporting requirements and would also be useful for evaluation of system performance. If the Authority chooses not to electronically report these <100 gallon overflows, they are still responsible for tracking these for purposes of annual reporting.

For reporting SSOs, one of two forms shall be used, depending on the type of SSO, as follows:

- Long-Form – This form shall be used if the SSO requires immediate reporting as described in Section II.1. above.
- Short-Form – This form shall be used for SSOs that are not required to be reported immediately (generally, SSOs between 100 gallons and 1,000 gallons). This section also has a checkbox for spills from laterals, which will only apply to those Authorities who own some or all of the laterals.

If an SSO requires immediate 24-hour reporting, and the web-based reporting system was not used to make the immediate 24-hour report, then the Authority shall still use the Long-Form Report to submit the information via the web-based reporting system within 10 business days of identification of the SSOs by Authorities.

Following electronic reporting of an SSO, a confirmation e-mail will be sent to both the Agency Manager/Director (specified during Online Registration), as well as any individual(s) specified during completion of the SSO report.

4. Lateral SSOs on Private Property, Caused By Private Property Owner

SSOs from laterals on private property, that are caused by a private property owner, are not required to be reported. However, as an option, if the Authority wishes to notify the Regional Water Board of these types of SSOs, it can logon to the web-based reporting system through the Public domain (i.e. without passwords) at the logon prompt titled "SSO eReporting by Public or Registered User". By reporting through the Public domain, the accounting of these SSOs will be separate from the SSOs over which the agency has control.

5. Annual Report

a. Annual Report Content

IN DEVELOPMENT

Guidance for Annual Report content is currently being developed and will be circulated early in 2005. Note that the first Annual Report is not due until March 15, 2006, and will cover thirteen months, December 2004 - December 2005.

b. Annual Report Signature Requirement

Pursuant to 40 CFR 122.22, the annual reports shall be certified and signed by either a principal executive officer or a ranking elected official.

The annual reports must be certified with the following statement:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

c. Annual Reporting Schedule

Sewer system authorities shall submit annual reports to the Regional Water Board for the January 1 to December 31 reporting year no later than March 15 of the following year. The first annual report is due March 15, 2006. Agencies may request an alternate schedule than the one assigned if there is a compelling reason and the request is made at least one month prior to the due date. Annual reports shall be sent to:

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Division - Sanitary Sewer Overflow Annual Reports

The Water Board requests all Authorities to submit one paper copy of the annual report, and one electronic copy in Portable Document Format (PDF) of annual reports. Annual reports shall be placed in one PDF file. Hard copy reporting is required, and PDF reporting is voluntary, but requested. The paper copy can be mailed or hand-delivered to the Water Board. All PDF documents should be sent to Water Board File Transfer Protocol (FTP) site at <ftp://swrcb2a.swrcb.ca.gov>. A guide to submitting electronic documents is in Attachment C to this program.

III. RECORDS TO BE MAINTAINED

All records of SSOs shall be maintained by Authorities for a minimum of three years from the date of the SSO. This period may be extended during the course of any unresolved enforcement action regarding a discharge or when requested by the Executive Officer.

Attachment A

POSSIBLE METHODS FOR ESTIMATING SPILL VOLUME

A variety of approaches exist for the estimation of the volume of a sanitary sewer overflow. This appendix documents four methods that are most often employed. Other methods are also possible. The person preparing the estimate shall use the method most appropriate to the SSO in question using their judgment. If these methods are not practical for your agency, it may be appropriate for your agency to develop its own guidelines. In any event, every effort shall be made to make the best possible estimate of the volume.

Method 1 Eyeball Estimate

The volume of very small spills can be estimated using an "eyeball estimate." To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to 100 gallons.

Method 2 Measured Volume

The volume of some small spills can be estimated using this method if it is not raining. In addition, the shape, dimensions, and depth of the spilled wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Step 1 Sketch the shape of the contained sewage

Step 2 Measure or pace off the dimensions.

Step 3 Measure the depth in several locations

Step 4 Convert the dimensions, including depth to feet.

Step 5 Calculate the area using the following formulas:

Rectangle $\text{Area} = \text{length} \times \text{width}$

Circle $\text{Area} = \text{diameter} \times \text{diameter} \times 0.785$

Triangle $\text{Area} = \text{base} \times \text{height} \times 0.5$

Step 6 Multiply the area times the depth

Step 7 Multiply the volume by 7.5 to convert it to gallons

Method 3 Duration and Flow Rate

Calculating the volume of spills where it is difficult or impossible to measure the area and depth requires a different approach. In this method separate estimates are made of the duration of the spill and the flow rate. The methods of estimating duration and flow rate are:

Duration: The duration is the elapsed time from the start time to the time the spill stopped.

Start time is sometimes difficult to establish. Here are two approaches:

For very large overflows, changes in flow on a downstream flow meter can be used to establish the start time. Typically the daily flow peaks are “cut off” or flattened by the loss of flow. This can be identified by comparing hourly flow data.

Conditions at the spill site change with time. Initially there will be limited deposits of grease and toilet paper. After a few days to a week, the grease forms a light colored residue. After a few weeks to a month the grease turns dark. In both cases the quantity of toilet paper and other materials of sewage origin increase in amount. These changes with time can be used to estimate the start time in the absence of other information.

Sometimes it is simply not possible to estimate the start time.

End time is usually much easier to establish. Field crews on-site observe the “blow down” that occurs when the blockage has been removed. The “blow down” can also be observed in downstream flow meters.

Flow Rate: The flow rate is the average flow left in the sewer system during the time the spill stopped. There are three ways to estimate the flow rate:

San Diego Manhole Flow Rate Reference Sheet: This sheet, presented in Figure A-1, shows the sewage flowing from a manhole cover for a variety of flow rates. The observations of the field crew are used to select the approximate flow rate from the chart.

Flow meter: Changes in flows in the downstream flow meters can be used to estimate the flow rate during the spill (better for large SSOs),

Estimate based on up-stream connections: Once the location of the spill is known, the number of upstream connections can be determined from the field books. Multiply the number of connection by 200 to 250 gallons per day per connection or 8-10 gallons per hour per connection, or other flow rates that are consistent with an agency's data for its connections.

Once duration and flow rate have been estimated, the volume of the spill is the product of the duration in hours or days times the flow rate in gallons per hour or gallons per day.

Figure A-1 – Reference Sheet for Estimating Sewer Spill Flow Rate (from City of San Diego)

[INSERT FIGURE A-1 HERE]

Attachment B

SANITARY SEWER OVERFLOW REPORT FORM FOR IMMEDIATE REPORTING BY FAX

This form may be used to record SSO information for immediate reporting purposes. Submittal of this form via fax or email to the Water Board within 24 hours of an event satisfies the Immediate Reporting requirement; however, complete reporting must also be submitted using the web-based reporting system, (SSO ERS) within 10 business days in which the SSO was identified by the Authority.

1. OES Control number (Not applicable for SSOs <1000 gallons): _____
2. Method of 24-hr Reporting To Regional Board. Check all that apply.
☐ Fax (510-622-2450) ☐ email ☐ Voice Mail (510-622-xxxx) ☐ Staff Contacted: _____
(staff name)
3. Date Reported: ____/____/____ (MM/DD/YY)
4. Time Reported: ____:____ (Military or 24-Hour Time)
5. Reported By: _____ Phone Number: (____)____-____
6. Reporting Sewer Agency: _____
7. Responsible Sewer Agency: _____
8. Overflow Street Location: _____
(If the overflow did not occur at a street location, then use other identifiers, such as the grid information in Thomas Brothers Maps)
City: _____ Zip Code: _____ County: _____
9. Overflow Start Estimate: Date: ____/____/____ (MM/DD/YYYY);
Time: ____:____ (Military or 24-Hour Time)
10. Overflow End: Date: ____/____/____ (MM/DD/YYYY);
Time: ____:____ (Military or 24-Hour Time)
11. Estimated Overflow Flow Rate: _____ (gallons per minute)
12. Estimated Total Overflow Volume: _____ (gallons) – See Attachment A for guidance
13. Overflow volume recovered: _____ (gallons)

Attachment C

GUIDE FOR SUBMITTING ELECTRONIC DOCUMENTS SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

Document Requirements

- Submit all documents to the Board both as a paper copy for staff review and as an electronic file copy via Internet for archiving (electronic reporting is voluntary).
- Submit electronic documents as Portable Document Format (PDF) files.
- The PDF files shall include images of signed, dated and letterhead pages as appropriate. Submit each document as a single PDF file. For example, signed cover letters accompanying reports should be included as the first page(s) of the PDF file. Each report should be submitted as a single PDF file, not as separate chapters, figures, etc.
- The file name should be representative of the document or project. Example: Use "ParkRoadBeniciaRptSept03.pdf" instead of "4365.00 Final"
- Submit files to the appropriate Board staff person's folder in the Board's File Transfer Protocol (FTP) site (see below).

Document Submittal Procedure

1. Access our FTP site via your Internet browser.

Address: <ftp://swrcb2a.swrcb.ca.gov/>

[After accessing the website, right-click on the screen and then Login as:]

User Name: rb2ftp

Password: sfbayrb2

2. Click on the "Staff" folder.
3. Open the "Sanitary Sewer Overflow" folder and copy the file into it.
4. Send a confirming e-mail to Greg Walker at gwalker@waterboards.ca.gov.